

5★

SKELTON DOVETAILER

Issue 292 ● £4.25

'It's fantastic'  
- David Charlesworth

# Good Woodworking

The No.1 magazine for aspiring designer makers

THE HOME OF WOODWORKING  
[www.getwoodworking.com](http://www.getwoodworking.com)



OPTIMAXX  
SCREWS



UPCYCLE...

...from table to quirky cabinet



TURNING...

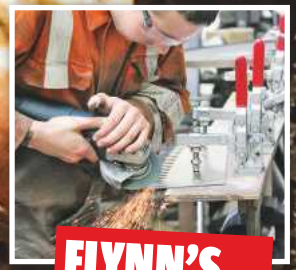
...nut bowl & hammer in May

PLUS...

- Kit & Tools: Andy tests Axminster Numatic extractor
- Hopkins' home truths: Edward tackles barn-style doors
- Woodwork foundations: Michael makes carcass shelving

## EXTREME SCULPTURE CHAINSAW ART

Just don't try this at home



FLYNN'S...

...maintaining Sheffield standard

LAP TOP...

...guitar to make from offcuts

mytime media WOODWORKING GROUP  
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clout:til May be out

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# Welcome

It should go without saying that woodwork is a potentially dangerous pursuit, after all we're all grown ups aren't we! So rather than pretend that chainsaws don't exist I'm happy to include examples of what can be done with them in *Good Woodworking*. I trust you to put one of these fearsome machines into action only if you have had the appropriate training – and even then always with the utmost care and togged up in all the essential safety gear. For now join David Vickers in celebrating the stunning sculptures than can be achieved with them by a master of his craft, **p42**. At the other end of the scale has to be Shane Skelton's amazing dovetail saw, a hand-made tool that some of our most eminent and hard-to-please critics have been unable to fault, **p34**. Its perfection would no doubt be appreciated by our woodwork foundations leader Michael Huntley, who gets on to carcase shelving, **p30**, and by hand-tool stickler Jeff Gorman, this month drilling mortises for chair arms, **p28**. Phil Davy investigates secret panel fixing, **p74**, Phil Edwards makes a guitar, **p36**, Edward Hopkins builds barn-style doors, **p50**, Tony Scott a pan stand, **p66**, and Les Thorne turns a nut bowl and hammer, **p80**.

**Andrea Hargreaves, Editor**



**Andrea Hargreaves**  
Editor



**Andy King**  
Technical Editor



**Dave Roberts**  
Consultant Editor



**Phil Davy**  
Consultant Editor

We endeavour to ensure all techniques shown in Good Woodworking are safe, but take no responsibility for readers' actions. Take care when woodworking and always use guards, goggles, masks, hold-down devices and ear protection, and above all, plenty of common sense. Do remember to enjoy yourself, though.

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# Good Woodworking

May 2015

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Tools • Projects • Techniques • Advice



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David Vickers meets up with chainsaw school chum Chris Bain who uses his to carve owls and fantasy creatures

Cover photograph by David Vickers

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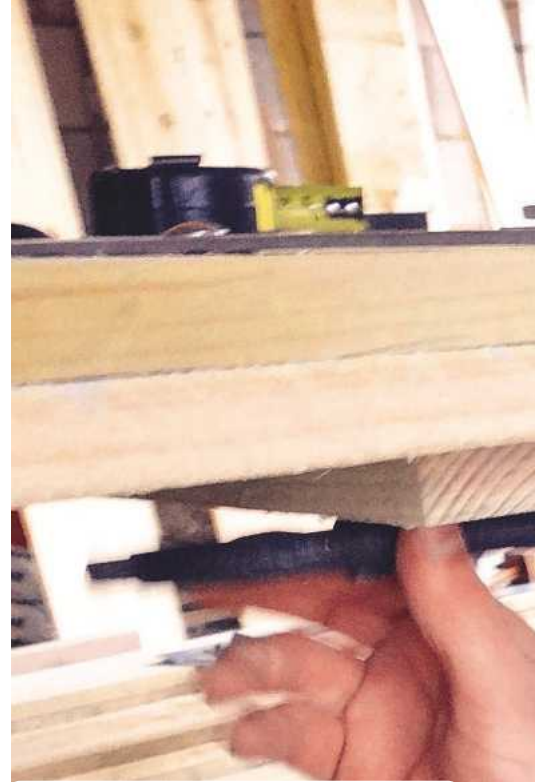
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**Made in Sheffield**  
Andy checks out Flinn’s manufacturing process





# KEEP OUT!

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**GW 293**  
ON SALE  
29 MAY



**CLEVER!**

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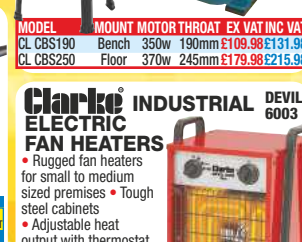
MODEL	MOUNT	MOTOR	THROAT	EX VAT	INC VAT
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B0455\*



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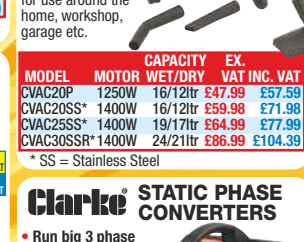
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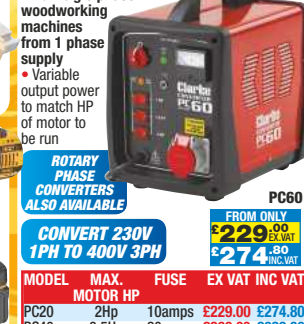
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Stanley	Clamped	72/60/40	£16.99	£20.39
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Record V75B	Clamped	75/50/32	£18.99	£22.79
Clarke WV7	Bolted	180/205/78	£24.99	£29.99

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**Makita**

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MODEL	BLADE DIA	MAX CUT BORE (mm)	DEPTH/CROSS	EXC. VAT	INC. VAT
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Fury 3	210/25.4	60/200mm		£119.98	£143.98
Einhell	250/30	75/340mm		£159.98	£191.98
TH-SM2534					
Makita	260/30	95/130mm		£199.98	£239.98
LS1040					

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 • Flow rate of 850M3/h

MODEL	MOTOR	FLOW RATE	BAG CAP.	EXC. VAT	INC. VAT
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CDE7B	750w	850 M3/h	114Ltrs	£139.98	£167.98

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\*Includes laser guide

MODEL	MOTOR	MAX CUT 90/45 (mm)	EXC. VAT	INC. VAT
Clarke CCS185B	1200W	65/44	£34.99	£41.99
Clarke CCS2	1300W	60/45	£59.98	£71.98
Clarke CON185*	1600W	60/40	£59.98	£71.98

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**Clarke TURBO COMPRESSORS**

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8/250

MODEL	MOTOR	CFM	TANK	EXC. VAT	INC. VAT
Tiger 8/250	2Hp	7.5	24ltr	£79.98	£95.98
Tiger 7/250	2 Hp	7	24ltr	£89.98	£107.98
Tiger 8/36	1.5 Hp	6.3	24ltr	£109.98	£131.98
Tiger 11/250	2.5Hp	9.5	24ltr	£119.98	£143.98
Tiger 8/510	2Hp	7.5	50ltr	£129.98	£155.98
Tiger 11/510	2.5Hp	9.5	50ltr	£149.98	£179.98
Tiger 16/510	3 Hp	14.5	50ltr	£219.98	£263.98
Tiger 16/1010	3 Hp	14.5	100ltr	£269.98	£323.98

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**BOSCH**

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**£47.99** INC.VAT

ACCESSORIES IN STOCK

CR1C

\* DIY

MODEL	MOTOR (W)	PLUNGE (mm)	EXC. VAT	INC. VAT
CR1C*	1200	0-50	£39.98	£47.98
Bosch	1400	0-55	£74.99	£89.99

POF1400ACE

**Clarke CONTRACTOR CR2 ROUTER**

FROM ONLY **£109.99** EXC.VAT  
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• Powerful heavy duty machine ideal for trade use  
 • Variable speed control from 7,400-21,600 rpm • 2100w motor • 0-60mm plunge depth. CR3 Router with 15 Piece Bit Set also available only £94.99 £113.99

INCLUDES 15 PIECE SET WORTH OVER £20

**Clarke ROUTER TABLE**

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• Converts your router into a stationary router table • Suitable for most routers (up to 155mm dia. Base plate)

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CTS14

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 Shown with optional leg kit  
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• 120w, 230v motor • 50mm max cut thickness  
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CSS16V

MODEL	MOTOR	SPEED RPM	EXC. VAT	INC. VAT
CSS400B	85w	1450	£64.99	£77.99
CSS16V	120w	400-1700	£79.98	£95.98
CSS400A	90w	550-1600	£99.98	£119.98

\* Includes flexible drive kit for grinding/polishing/sanding

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Router not included

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• Converts your router into a stationary router table • Suitable for most routers (up to 155mm dia. Base plate)

**EVOLUTION 255mm MULTI-PURPOSE TABLE SAWS**

MODEL	MAX DEPTH CUT	TABLE SIZE (mm)	EXC. VAT	INC. VAT	
FURY 5 ONLY	45°	90°			
FURY5	54mm	73mm	625x444	£149.98	£179.98
RAGES	55mm	79mm	868x444	£269.00	£322.80

\* FURY power: 1500w (110V available)  
 \* RAGE power: 1800w/230V (110V available)  
 table extensions included  
 \* was £191.98 inc.VAT † was £334.80 inc.VAT

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# Good Woodworking News

from the bench

Comment, insight, views and news of woodworkers from around the globe

## Festool dust extractor

Suitable for class L dust, the CTL SYS dust extractor is equipped with the T-LOC jointing system used on Festool systainers, meaning that it can be connected easily to other tools. It also connects to the SYS roll or SYS cart.

Measuring 270mm in height and weighing only 6.9kg, if the hose garage is removed, the height of the unit is reduced to 162mm; and at 67dB, the CTL SYS is particularly quiet.

"We have developed our new Systainer extractor specifically for all situations where a tradesman would think twice about bringing a dust extractor at all," said product manager Andreas Buck.

"We took care to ensure that no parts can get lost and that everything is stored in a neat, compact design. A particularly practical feature is the clever hose storage system contained in the device itself. This ensures that the hose does not protrude from the unit and therefore cannot get caught on anything during transport." For more info go to [www.festool.co.uk/dustfree](http://www.festool.co.uk/dustfree)



## Axminster trade bag

The Axminster Tradesman kit bag offers enough room for a power drill and battery plus bits, drivers, screws and tools, and has internal and external pockets, a 12-piece tool roll, some elasticated straps and two zipped document pockets, one transparent. The bag is constructed around a rigid core, covered by a heavy-duty, double-stitched nylon outer with a pair of zipped covers. It features a chrome-plated steel carrying tote with a rubber grip. A pair of D rings is sewn and riveted onto the outside to secure a shoulder strap. A thick rubber base has been permanently bonded to the underneath.

The bag can be purchased on its own for £59.96 or as a package with 103 accessory bits, holders and cutters from the Fisch, Axcaliber and new Axminster Trade Bitz ranges, all double grooved and compatible with all makes of power tool, for £199.96.

For more info go to [www.axminster.co.uk](http://www.axminster.co.uk).

## Lightweight tools from Hilti

Operating on a new 12V battery platform, Hilti's SF 2-A, SFD 2-A and SID 2-A cordless drivers have been designed for working in tight spaces, dark corners or overhead for prolonged periods.

The SF 2-A drill driver is an all-rounder capable of 1,500rpm, weighs 1kg and is 175mm wide. The SFD 2-A screwdriver is the lightest and most compact of the range, weighing 0.9kg, measuring 144mm wide while also offering 1,500rpm. The SID 2-A impact driver is the most powerful and is capable of 2,500rpm while measuring 157mm wide and weighing 1.1kg. Each tool has two LEDs in its foot.

The lithium-ion Cordless Power Care (CPC) system features electronic battery management for extra-long lifetime and a rubberised, impact-resistant battery casing, and one battery can operate all tools on the



same voltage while an LED indicator enables the charge to be checked at the touch of a button.

All 12V tools can be purchased either outright or through Hilti's Fleet Management programme. For more info go to [www.hilti.co.uk/12v](http://www.hilti.co.uk/12v)



# The Innovation Continues...



## Rip-Cut™ KMA2675

- Simplifies process of ripping down large plywood & MDF panels
- Attaches to almost any circular saw
- Cuts accurately from 1/8" to 24" wide



## Kreg Jig® HD KJHD

- For use with minimum 1-1/2" materials
- Optimised for larger, outdoor projects



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## Mend your fences

IronmongeryDirect has introduced 35 fence hardware products to its range of 14,000 items. These include clips, brackets and accessories for fence posts such as post spikes, extenders and post tops. To see the full range, visit [www.ironmongerydirect.co.uk/products/gate\\_fence\\_and\\_shed\\_hardware](http://www.ironmongerydirect.co.uk/products/gate_fence_and_shed_hardware)



## Three from Clarke

Machine Mart is coming out with some nifty stuff from Clarke. Take the drill bit sharpener pictured for example, designed to restore a razor-sharp cutting edge to blunt drill bits. The built-in drill bit guide is designed to ensure sharpening at the correct angle and is suitable for 3-10mm HSS drill bits. The kit includes a replacement grinding stone.

The Clarke woodchip collector connects to saws, planers, routers, combi machines etc and offers a 56l 5-micron filter/bag, 450 cu ft per min airflow, 100mm hose attachment port and four castors on which to move the machine.

And the surface planer accepts timber lengths up to 152mm and

offers an adjustable planing depth of up to 2mm per pass with an angular fence movement between 90° and 135°. Its tabletop dimensions are 660 x 152mm and the kit includes two replaceable cutting blades, push stick and dust collection bag.

For more info on these products go to [www.machinemart.co.uk](http://www.machinemart.co.uk)



# Makita 2-piece LXT combos

Makita has launched three new 2-piece combination kits complete with Li-ion batteries, fast charger and carry case. Two of the kits each include one of the latest twin battery tools: either the DHR263 twin 18V LXT rotary hammer that generates 2.5 joules of impact energy and punch a 26mm hole through concrete, or the DHS710 twin 18V LXT 190mm circular saw. Both kits include a Makita DHP456 13mm, 2-speed combi drill, four 4.0Ah Li-ion batteries and fast charger, all in a carry bag. The DLX2069MX2 2-piece combo kit includes the rotary hammer, and the DLX2084MX1 kit features the 190mm circular saw. The DLX2024MJ 2-piece combo kit features the DHP456 combi drill and DJV180 jigsaw, two 4.0Ah batteries and charger in a Macpac hard case. For more info go to [www.makita.com](http://www.makita.com)

## Proxxon engraver

Now here's an idea for furniture makers wanting to add a classy signature: the Proxxon GE20 is a small engraving pantograph that allows a maximum of 14 characters to be fastened in the guide bar or template holder. Template contours can be precisely followed by using the ball-handled guide marker. During transfer, the lettering to be milled is scaled down to either a ratio of 2:1, 3:1, 4:1 or 5:1 by simply adjusting two screws. The workpiece is aligned and fixed on the movable guide block by means of clamping jaws, not supplied, or a vice.

The engraver is supplied with two sets of letters from A to Z, hyphen, full stop and dash, three Allen keys: 1.5, 3.0 and 5.0mm, as well as a 2.5mm HEX (ball head) screwdriver. A detailed instruction manual is also included.

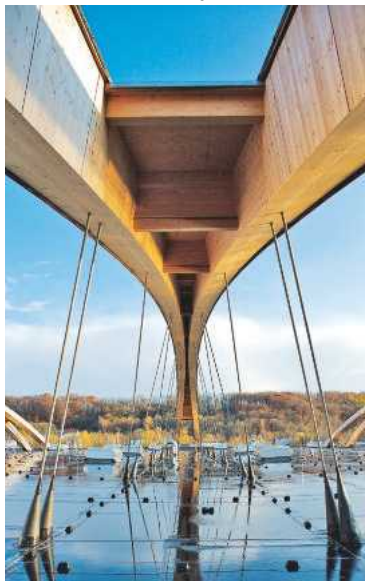
The engraver costs £189.96 inc VAT from [www.brimarc.com](http://www.brimarc.com)





## New top wood award

In addition to the Wood Awards a new set of prizes for timber buildings has been announced. The Structural Timber Awards is a celebration of innovation, best practice and expertise in timber technology. The award winners will be announced on 6 October at Birmingham's NEC. As an inaugural major event in the timber calendar, the awards will attract 500 national business leaders and high-profile decision makers from the construction industry. The awards comprise 14 different categories and are open to public and private organisations with projects located in the UK.



Bridges are the best example for the longevity of wood as a building material according to German constructors Wiehag which built this one over Austria's Wels exhibition centre. Let's see more of same in the UK...

for the judges' winner and £500 given to a design voted for by the public.

Both the Furniture & Product and Buildings sections are split into a variety of categories. The Arnold Laver Gold Award is given to an overall winner.

Find out more and register to enter on [www.woodawards.com](http://www.woodawards.com) before 26 May. Winners will be announced during a ceremony in London on 10 November.

Andrew Carpenter, chair of the judging panel, said: "These awards are set to be the highlight of our construction calendar. Already interest has been phenomenal, clearly demonstrating the breadth of innovation in the timber sector. The timing could not be better, taking place during the first UK National Construction Week, when our industry pioneers will be congregating at the NEC."

To enter the awards visit: [www.structuraltimberawards.co.uk](http://www.structuraltimberawards.co.uk)

This year's Wood Awards furniture category has been revised to encompass all areas of product design and has been renamed Furniture & Product.

A student award within this category has also been introduced, with a £1,000 prize

## British oak conference

The Weald & Downland Open Air Museum at Singleton, West Sussex has a one-day conference on Friday 19 June to focus on the botany of oak, its dendrochronology and provenancing, oaks before 1200D, the importance of oaks as habitats, and threats to the tree. The event precedes the museum's wood show, 20-21 June. For more info go to [www.wealddown.co.uk](http://www.wealddown.co.uk)



The museum represents the history of timber-framed houses. This one, Bayleaf, is a hall house from 1405 to 1430



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May is here, but don't say *may* be you'll take a course to improve your skills or learn new ones; make it a *must!*

## May

**1-3 Make wooden hand plane**

**21 Beginner bowl turning**

**21-24 Starting out in woodturning**

**22-24 Netsuke carving**

West Dean College

West Dean

Nr Chichester

West Sussex PO18 0QZ

Tel: 01243 811301

**5-6 Beginner woodturning (Axminster)**

**7-8 Woodcarving (Axminster)**

**13-14 Beginner woodturning**

**(Sittingbourne)**

**19-20 Bowls & Platters (Sittingbourne)**

**22 Turning pepper mills (Sittingbourne)**

Axminster Tool Centre

Unit 10 Weycroft Avenue

Axminster

Devon EX13 5PH

Tel: 0800 975 1905

**11-15 American double bow**

**25-29 Child's armchair**

The Windsor Workshop

Churchfield Farm

West Chiltington

Pulborough

West Sussex RH20 2JW

Tel: 01798 815925

## June

**4-5 Beginner woodturning (Sittingbourne)**

**15-16 Beginner routing (Axminster)**

**22 Kitchen door/jointing (Axminster)**

**23 Kitchen worktop (Axminster)**

Axminster Tool Centre

Unit 10 Weycroft Avenue

Axminster

Devon EX13 5PH

Tel: 0800 975 1905

**6-7 Weekend stool course**

**15-19 Rocking chair**

**29-3 July Continuous-arm chair**

The Windsor Workshop

Churchfield Farm

West Chiltington

Pulborough

West Sussex RH20 2JW

Tel: 01798 815925

**13 & 20 French polishing & refinishing**

Peter Sefton Furniture School

The Threshing Barn

Welland Road

Upton upon Severn

Worcestershire

WR8 0SN

**24 Country-style stool, beginners**

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Nr Chichester

West Sussex PO18 0QZ

Tel: 01243 811301

## Why timber's best

The timber frame construction industry is doing very nicely thank you, according to Simon Orrells of Frame Wise. The Structural Timber Association (STA) has, he says, stated that the timber industry has reported increases in sales of up to 163% in recent months. "These figures are a direct result of the widely reported shortage of materials in other sectors and the recognition that timber brings speed of build as well as superb energy efficiency. Timber frame is widely acknowledged as being the most economical and efficient method of construction, offering greater quality achieved through offsite build methods in controlled factory conditions and the ability to offer greater choice and adaptability."

He says timber frame providers can erect and make watertight an average 4-bedroom house in just seven days.

"The claim is that the traditional construction industry is pulling together to counteract so-called misplaced perceptions on



Highfield, one of the UK's most energy-efficient homes

modern methods of construction; however, I would have to agree with Andrew Carpenter, Chief Executive of the STA, who states that STA members are now witnessing the fruits of their labours... It is no wonder that the time for timber has come."

## Japanese hip rafter joinery masterclass

Michael Huntley's Japanese Tool Group is running a 4-day masterclass in Japanese hip rafter joinery (see pic) from 15-18 August at Phoenix Building Conservation Workshops near Salisbury. Mathieu Peeters, who will teach the course and is the founder of Oostenwind, received his training in traditional Japanese carpentry at East Wind Inc in California and apprenticed under Len Brackett, East Wind's CEO, and Ryosei Kaneko, a Japanese teahouse carpenter.

The course should be of interest to all who enjoy using Japanese tools because the techniques taught are transferable between small-scale projects such as cabinetry and large-scale projects such as gates and tea houses.

Mathieu, who has a blog at <https://fabulalignarius.wordpress.com>, says: "As carpenters working in the Japanese tradition

we need to be able to make any type of woodwork since here in the West we cannot rely on a culture where plenty of wood craftsmen compliment each other and can specialise in a single field, as they do in Japan. We must be able to build timber-frames but just as well *tansu*, *shoji* or interior finish carpentry."

Michael says: "Ten places are available on the course. You will need to bring a full set of tools ready for use. If you need advice about tools please contact the organisers, Andy Ryalls or Michael Huntley. Be prepared for some detailed hard work and long days, but those that have been on a similar course run by Mathieu in Germany say that they learnt a huge amount in a supportive and enjoyable environment.

"You will come away with a scale model of a traditional Japanese roof hip and a totally new appreciation of how to mark out, saw and chisel Japanese joints. Timber will be supplied as well as lunch and refreshments."

The course costs £300. For more info go to [www.hsow.co.uk/japanese-tool-group/](http://www.hsow.co.uk/japanese-tool-group/)



The Japanese Tool Group is running a few practice sessions and tool-tuning workshops prior to the course at a notional cost to prospective participants. For more info call Andy Ryalls on 07946 463906 or Michael on 01373 859977, or email [andyryalls@gmail.com](mailto:andyryalls@gmail.com) or [Michael@hsow.co.uk](mailto:Michael@hsow.co.uk)



# OFFCUTS

After a one-year break EWS is returning with its usual mix of top-class demonstrators and exhibitors across a wide range of woodworking disciplines. The show is at Crossing Temple Barns near Braintree, Essex over the weekend of 12-13 September.

Demonstrators will include woodturners Joey Richardson, Nick Agar and Mark Hancock, pyrographer Bob Neill, timber hewer Steve Woodley, woodcarvers Peter Berry, Tim Atkins, Dave Johnson and Gerald Adams, Japanese joint maker Brian Walsh, plus furniture makers David Charlesworth, Dylan Pym, David Barron and Treeincarnated.

For full details and advance tickets visit [www.ews2015.com](http://www.ews2015.com)



After the success of last year's Solid Wood Solutions and with timber-framed buildings reaching new heights of up to 10 storeys in the UK, this year's conference on 18 June will again be showcasing the best in engineered timber when innovators will be presenting prestigious projects from across the UK and Europe. To book a place at the London event go to [www.solidwoodsolutions.co.uk/book/](http://www.solidwoodsolutions.co.uk/book/)



A team of scientists in Wales has given the forests of south Wales the all-clear following concerns that the Large Larch Beetle could have migrated across the border from England.

After a 2-month monitoring programme The IMPACT forestry research project found no evidence of a breeding population in Wales.

The beetle had already been found in the Forest of Dean and the team led by Tim Saunders of IMPACT wanted to see whether larches already weakened by the fungal disease ramorum were attracting the pest.

## Good Woodworking Free Reader Ads

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**Scheppach planer/thicknesser HMS 3200 CI**, 12in cast-iron tables, very little use, perfect working order, possible delivery  
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### Miscellaneous

**Is there any reader with a Luna W57 machine** who could bring me up to speed with the spindle moulder and the mortiser?  
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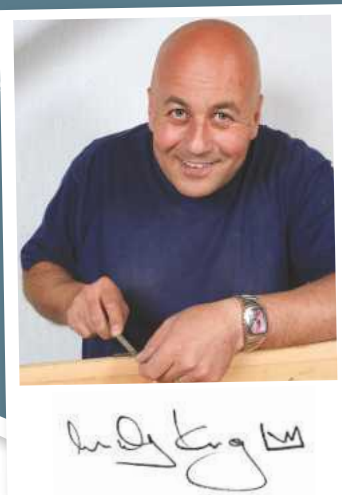
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# Good Woodworking Kit & Tools

New products, tools and tests

Andy King, Technical Editor  
andy.king@mytimedia.com

## Optimaxx screws

Andy was very much taken with these screws when he came across them at the Totally Tools show



▲ These screws speak for themselves when used on a melamine surface



▲ The rival screw on the left shows crushing around the perimeter of the head



▲ A sharp point and long clearance flute help prevent splitting without piloting



▲ With the screws removed the Optimaxx hole on the right shows a clean countersink



▲ Serrations on the lower threads minimise friction as it cuts



▲ These grooves work to remove waste for clean countersinking

If you've ever bought cheap screws you'll know the pitfalls associated with them. While premium screws abound to counteract such problems, these from Optimaxx are a little different... These screws aren't the only ones that will self-cut without a pilot hole but with the Optimaxx's wide and sharp threads starting right at the very tip, along with a groove in the point to gain additional clearance, they cut very quickly, biting into the wood and pulling in swiftly. A sawtooth-like serration on the first few turns of the thread severs the wood fibres to

aid clean cutting progress, and a lubricant coating minimises friction as the screws bite, with the longer screws benefiting from this the most here. I've seen screws that self countersink, but these have a raised ridge that cuts the head recess. They do work, but when used in a pre-countersunk hole these ridges can keep the head slightly above the surface. The Optimaxx countersink has 24 flutes cut into the underside so that the countersink remains the same-sized profile and will sit flush. These grooves certainly do a sterling job, especially on a melamine-finished board,

zipping away the surface like a dedicated rose-type countersink, so that the surface is cut cleanly for a premium finish. Trying them against another quality screw I found that the contender crushed the countersink into the melamine while the Optimaxx cleaned the countersink area cleanly.

**Conclusion**  
I'm impressed.

### Good The Woodworking Verdict

- + Self-countersinking head; very sharp; fast clean-cutting threads
- None

**Rating ★★★★★**  
**Typical prices:** Selecta pack £30.25; individual boxes from £3.00 upwards  
**Sizes:** 3.5 x 20mm - 6.0 x 180mm  
**Web:** www.proconnectltd.co.uk

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**How we rate...**

★	Don't get your hopes up or your wallet out!
★★	Well, it works but really needs improvement
★★★	Performs well, but you will find better
★★★★	Great performance and value for money
★★★★★	So good, even Andy would get his wallet out!

# In like Flinn

Andy King is greatly cheered now that traditionally made Clifton planes are in the hands of saw makers Thomas Flinn



▲ Flinn apprentice Nathan hard at work sharpening a logging saw with a grinder



▲ This old advertising placard depicts one of the range that Thomas Flinn still makes

Sheffield was and still is iconic in the steel and tool industry, not only in the UK but globally. However, with new technology the high-quality hand tool manufacturers are nowhere near as prolific as in days gone by. But I've been lucky enough to visit a few of the remaining ones over the years, including the Clifton hand plane and Thomas Flinn saw manufacturers, so on hearing that Alan Reid, the owner of Clifton Planes, was retiring and selling the business to Thomas Flinn, during a recent visit to the North I dropped in to check that the brand was safe in its hands.

Clifton, of course, was more of a side line to the more lucrative Clico side of the company that manufactures for the aerospace industry. The effect of this was that despite the superb quality of its planes, the Clifton brand had stagnated somewhat, with just a core set of hand planes and a few specialist spokeshaves and the like available.

Even the mythical Clifton block plane, only ever seen at shows under the careful watch of Mick Hudson, Clifton's long-serving demo guy, never got any further despite the fact that it would undoubtedly have been very popular.

So with Thomas Flinn stepping up to the



# Thomas Flinn & Clifton planes



▲ Here the standard handsaws are hand fed through the setting machine



▲ The high-end saws are hand sharpened by Christian



▲ Close up of the filing process



▲ Hand-lacquered and sprayed handles on the top-end saws give them a classy look to match their performance



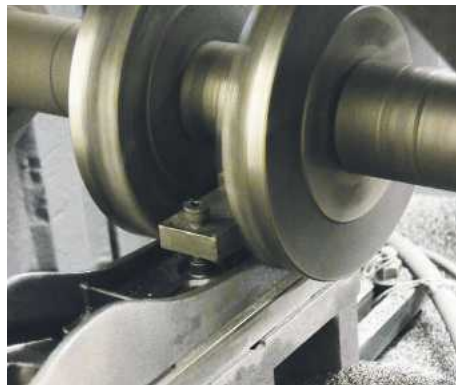
▲ Note: it's not all about cutting wood; these blades are made solely for musical saws



▲ The new grey livery of Clifton planes has a muted elegance



▲ The castings and the subsequent paint job on all the bench planes are done off-site prior to machining



▲ Both wings are milled in unison to keep them parallel to each other



▲ The soles are milled in a number of passes to get them flat

plate to extend its grip on the classic handsaw market, it is bucking the trend to bring the dying art of Sheffield hand tools back to life and increase its global showing.

While still currently operating out of the same Burton Weir plant as before, the Clifton Plane manufacturing department is separated and independent to the Clico side of things and, according to Katie Ellis of Thomas Flinn, it is likely to relocate at some stage; if room allows, it will be on the same site as the saw manufacturing plant to keep things neat, tidy and under one roof.

It's certainly a leaner operation than when I originally visited Burton Weir, with only Geoff Sambrook and Shaun Lynch remaining as the main plane makers. The original Clico manager, Neil Mycroft, is currently assisting with the crossover to the Thomas Flinn ownership. Despite this slimmer workforce, the high quality remains, if somewhat different to the original concept in a couple of key areas.

I guess for the dyed-in-the-wool tooly, it's the dropping of the racing green livery for the new graphite grey paint job. It's certainly caused many an argument and discussion on

woodworking forums, and I guess there's some mileage in the anti-grey naysayers' opinion that the green is an identifier for the brand, but I think it looks pretty darned good!

Also, more importantly, Thomas Flinn is picking up plenty of orders both here and overseas, including new business, so the colour isn't as detrimental as the forums would have us believe!

Then of course, there's performance... Had Thomas Flinn gone down the route of cheapening production or the materials then a furore would have been absolutely valid, but

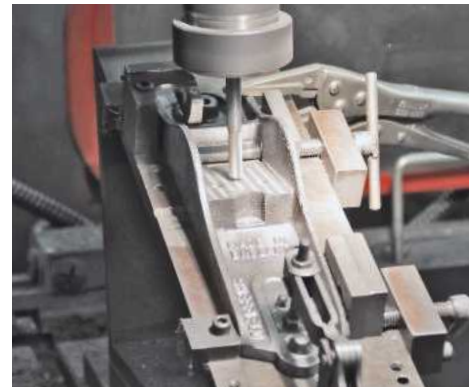




▲ The resultant soles are flat and finely finished



▲ Shop-made jigs play their part for some of the milling operations. This one...



▲ ...sets the plane at the correct angle for the frog mating point to be ground



▲ On the right, the finished casting ready to be checked for flatness on the surface plate



▲ All the bright work is polished by hand on buffing wheels



▲ These lever caps show the high polish achieved before they leave the factory

my second visit to the Clifton base camp five years later shows that same high quality and very hands-on manufacturing process.

It mirrors the saw-making expertise of the Thomas Flinn company; again a small but dedicated team of craftspeople who work the machinery that does the donkey work, but with that skill of finish that only a trained eye can attain.

A second area of change on the planes over the originals is the iron. A further internet discussion ensued on the original positioning, or in many cases, mis-positioning of the drop-hammered Clifton logo that was embossed into each blade during the forging process. It would seem that while green is good, a not properly centred logo isn't, and allegedly cheapened the look if the very small band of people the internet forums attract are to be believed, in comparison to the amount of users out there who let the tools do the talking. Not for me though: it was always a mark of a hand-forged piece of work, and reminiscent of the old wooden planes with equally workily placed logos. It never stopped them from building Britain for centuries!

But with a new setup comes change, and again the blades have undergone a makeover. These are still of top-end quality

tool steel, but now cryogenically treated and etched to have both a very uniform and consistent steel as well as consistently placed logo, so that should satisfy a few of the internet complainants I guess!

The same 2-piece cap iron remains though, as does the Bedrock-style pinned frog for easy adjustment of the mouth aperture, both desirable features for faster honing and if you do adjust the mouth regularly, an easier method over a standard screwed-down frog as you don't have to strip the plane to do so.

### Fully controlled process

I once again had the chance to see a few of the processes in the making of the planes, and it remains very much a small batch operation with bodies loaded up to each milling process by hand with only a few at a time in some processes and singularly on others.

This certainly maintains a fully controlled process so that any sub-standard castings or problems arising during machining are easily monitored and picked up on to prevent any inferior planes getting to market.

That remains the same a few streets away at the Thomas Flinn saw makers' workshops, and I had a flit through there while I was at it.

Katie's brother Christian was on hand once again, keeping an eye on the apprentice,

Nathan, as he was working on some big logging saws before heading off to hand sharpen a few of the PAX saws prior to packaging.

While the Clifton facility almost has an air of olden times – and walking into the factory it was almost like going into a black & white movie with a lot of big battleship-grey grinding machinery and the walls bearing similar colour schemes from the manufacturing process – Thomas Flinn is certainly of the 21st century with its new laser engraver for putting the logos onto the metalwork.

Clifton and Thomas Flinn complement each other perfectly, offering high-end tools for the woodworker that have not only pedigree and the hand-skilled finish that raises the bar, but also continues Sheffield's long-standing association with steel and tools.

Others may fall by the wayside, but this amalgamation looks like a perfect opportunity to leap further forwards and bring even more quality products to the market, which is no bad thing in my book.

### More info

Find all of the Thomas Flinn products and other Sheffield-made woodworking tools at: [www.flinn-garlick-saws.co.uk](http://www.flinn-garlick-saws.co.uk)

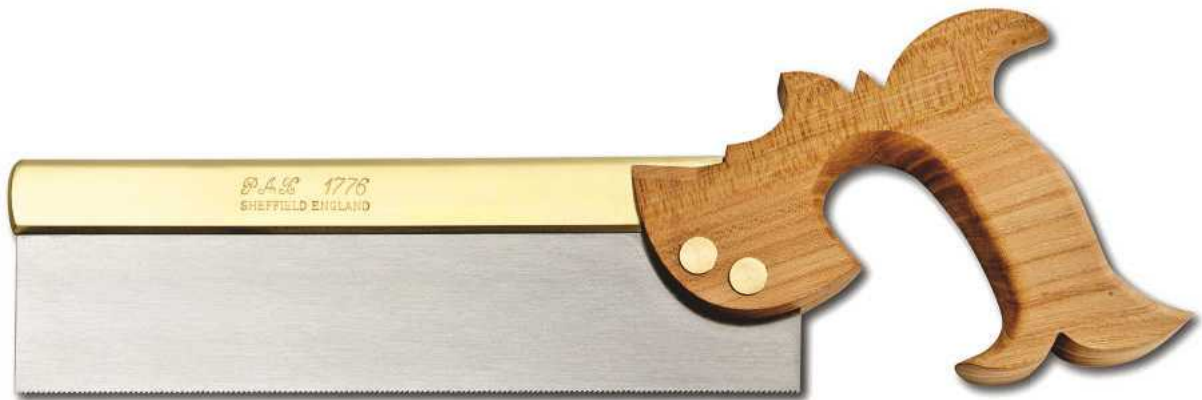


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# Going up a class

## Axminster's new extractor can be upgraded with the addition of a filter attachment

A few years ago the HSE was targeting vibration levels through power tools and now it's the turn of the dust extractors. No bad thing as it's the finer dust we cannot see that can cause the most damage, and although there has been filtration to micron levels in built-in workshop systems especially, the portable extractors have often been a bit more hit and miss as to what level they filter to.

The current legislation is working to three defined categories of L, M and H (low, medium and high respectively) and already on many building sites dust-generation tools can only be used if they are linked to an extractor.

All of these ratings work to very high efficiency and while the L class hits some of the woodwork-related dust capture, hardwoods and other wood-based materials can need the M class rating, and with more aggressive and dangerous silica-type particles from stone and other harder building materials needing capture, the M class is a more efficient and all-encompassing extractor.

Speaking to a few people out on site on my Bristol area home patch, the L class for wood-related work seems to satisfy the site managers but it's likely that the M class will be the minimum requirement on site once there's a full take up of HSE regulation to ensure everyone is covered to the same standard.

This makes this particular extractor from Axminster an attractive proposition; it starts life as an L class model with a 0.5-micron

capture rating. However, there's an additional Hepa filter module available that clips in between the collection drum and the motor unit that upgrades it to an M class model should a higher rating be required.

The difference between the two sounds surprisingly little; L class has to capture 99% of the dust it filters while the M class has to collect 99.9%, but these classifications are also defined by the concentration of the released dust.

L has to be less than 1 microgram per square metre with M down to 0.1mg per square metre.

If anything, these very high values and the fineness of particles in relation to the amount of permissible dust released back into the atmosphere emphasise how the finer microscopic particles do the most damage to our respiratory systems.

### What you get

Once you get past all the relative filtration rules and regulations the extractor itself is



certainly a well-constructed little unit, and the compact size is certainly a bonus if you have to move your gear around from job to job.

The fitted wheel kit allows it to move freely around with you if you need to do a long run, although the 3000mm-long hose gives good enough mobility for most scenarios.

A set of clips is supplied to clip the cable of the tool you are using to the hose to minimise snags and keep the cable from trailing around as you manoeuvre and I found the system works very well in this respect.

The upper motor housing is a steel casing with the lower canister in a very robust plastic, that is very thick walled – kick it around a building site or drop it off a scaffold and it looks as if it wouldn't flinch.

The motor head unit is all steel for additional and equal durability.

As with most dedicated extractors there's an independently switched power take off to allow the machine to auto start as soon as the power tool you have connected to it is switched on.

Additionally, the extractor runs on for a



▲ The first filter is the collection bag; you can use the vac without one though



▲ A second thick felt-like filter seals the drum

# Axminster XP380s extractor

short period after the tool is switched off to capture any residual dust generated.

Undo the two toggle clips and there's a three-filtration setup: the main dust bag to collect the majority of the waste along with a drop-in thick, smooth-coated felt-like one that seals the drum; the third filter is a finer thin nylon mesh type that drops in over the felt one to mop up the finest particles that have evaded the first two.

## Cleaning machine

There's also a basic cleaning kit supplied: extension tubes and a floor-cleaning head, ideal for working in domestic environments as well. This is a dry pick-up machine only, so no wet work can be done, but it is still a good all-rounder for site and domestic applications alongside its ultra-efficient fine filtration.

However, it's the all-rounder moniker that does make it differ from the dedicated models offered by the tool manufacturers.

While these will often include general cleaning kits, they also normally have either shake-down functions built in to clear the filters of debris when they are starting to clog alongside, or including audio signals or machine cut offs if the filter is clogged and efficiency drops; these, with the fine filtration, are normally additional features that define the M class.

My main concern is that this particular model doesn't have either shake down or audio, which may well prevent it from full site use should the legislation require these for an M class machine.

## Conclusion

Despite the lack of audio or shake down functions this is still a top-end extractor that works exactly as I would hope; it's very compact and lightweight, plus it is incredibly quiet in use, the usual high pitched whine that accompanies vacuums being muted to a very low level. It is however, quite a costly unit and more so if you add in the additional Hepa filter to gain class M filtration, but whatever your choice decent dust control should be top of any list, and this one has the Numatic pedigree to back it up.

## Good The Woodworking Verdict

+ Option to upgrade the filtration class; built like a tank; powerful and compact

- No wet pick up; expensive upgrade if it may not meet future legislation for M class

**Rating ★★★★★**

**Typical price:** Basic L class unit **£419.95**, Hepa filter M class upgrade **£199.96**

**Power:** 1100W

**Air volume:** 2400l per min

**Container volume:** 15l

**Power take off:** 1600W max

**Web:** [www.axminster.co.uk](http://www.axminster.co.uk)



▲ The third fine nylon-type mesh acts as the final filter



▲ The additional Hepa filter is optional to gain M class filtration levels



▲ High-quality toggle clips secure the Hepa and motor housings firmly

► The motor housing is all-steel construction for additional protection



▲ The power take off will work with tools up to 1600W



▲ A simple tapered adapter is supplied for power tools



▲ General pick-up jobs are quick and efficient; even bigger shavings and suchlike didn't clog the tubes

► But it's with finer dust control where it excels; no visible dust escaped during my testing





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There's good news, and there's bad. For those who enjoyed last month's interlude and the big-band sound of Andy King's mix of woodworking and tools, the bad news is that I've turned up again like a bandaged thumb. The good news, though, is that I've discovered time travel, which isn't something that happens to me every day – although I suppose that it could do from now on, unless I was mistaken. It all seemed very real, though: I just stepped in through the doors of a hangar in a corner of a Bavarian airfield...

Dave Roberts, Consultant Editor

## Wooden engineering



Rare warbird: Flug Werk's replica FW190 isn't the sort of thing you'll find in many workshops...

...and I was transported back to February 1945, when what remained of Germany's battered aircraft industry was operating in makeshift conditions. At the back of the hangar, crouched like an animal at bay, was this monster – a replica FW190s built by Flug Werk. Seventy years after the end of the war in Europe, the project to recreate one of Germany's most redoubtable fighting machines is also coming to a close, but over the last 20 years it has involved Flug Werk's founder, Claus Colling, in some remarkable reverse engineering, working back in some cases to unearth original drawings, methods, and even manufacturers. For woodworkers, one of the points of interest in what is admittedly a metal aeroplane, is the MT-made propeller: the three enormous blades – upon which the 1900hp engine depends to transmit its power to the air, of course – are each made of three timbers. Starting with ash at the hub end, they feather out through spruce to birch at the tip, the timbers' different densities being employed to provide strength in the blades' curves and twists, while minimising their overall weight and progressively reducing the prop's rotating mass towards the circumference.

### Creating curves...

Closer to home, I recently came across another clever example of laminations being put to work to create curves when I wandered into a kitchen-cabinetmaker's workshop. The commercial imperatives in this sector – the need to combine speed of construction with a range of styles, including painted finishes – seems to mean that all sorts of techniques are used that have little to do with traditional cabinetmaking, but which nonetheless make very effective cabinets.

In this case, they were making up curved cabinet doors using 5mm bendy ply to form the cores which were skinned with 2.5mm aero ply, the three layers being shaped around wooden formers using vacuum bags; once dry, the



...though the ash, spruce and birch of its propeller are materials familiar to every woodworker



To experiment with laminating to create curved shapes, Dave built a former from MDF...

resulting panels were remarkably rigid with almost no spring-back when released from the mould. This rigidity, of course, comes from the fact that the layers within the panel are concentric to each other and therefore follow arcs of different radii, meaning that the veneers are of different lengths, the shortest on the inside and the longest on the outside. Though individually easy to bend, once locked to their neighbours by the glue, any one veneer attempting to straighten itself would have to shorten – which is to say, compress the fibres – of the veneer on its outside, and lengthen (or stretch the fibres of) the veneer on its inside. The combined effect, then, is for the glued veneers to hold each other in shape, and in the case of the cabinet doors, their rigidity is such that they don't need the strength of an enclosing frame. Even so, the appearance of frame & panel construction is created by making laminated stiles and rails – which are obviously bent to shape on formers whose inner radius matches the outer radius of the panel – and gluing them to the face of the panels.

What also intrigued me was the fact that the aero ply skins had been faced using Kraft paper, a heavyweight stock whose smooth and uniform surface provides an excellent base for those spray-painted eggshell finishes that are presently so popular in kitchen design.

Although I still haven't experimented with vacuum presses myself, I see that Bagpress ([www.bagpress.com](http://www.bagpress.com)) is making such adventures in lamination almost painless by offering not only bag & compressor kits, but also a mould-making service producing styrofoam formers that are cut to your spec using a CNC hotwire machine.

It's all a far and more sophisticated cry from my first attempt at making curved components, which was inspired by the realisation that lamination enables you to introduce to your woodworking quite extreme shapes that would be impractical to make using solid or even steam-bent timber, while maintaining a continuity and flow in the grain that makes the resulting shapes both strong and natural in their appearance.

### ...and bending grain

The experiment involved bending simple strips of beech veneer which, being a relatively straight-grained timber free of knots and flaws, is a safe bet for this sort of work, though ash,



Strength in numbers: uncramped and cleaned up, the laminations created a strong and beautiful set of curves

birch or oak also lend themselves to bending. The former, meanwhile, was made from MDF, as were the two shaped clamps that I used to apply pressure to the outside of the veneers and ensure that they were tightly bonded. To accommodate the veneers, the radii of the clamps' curves were greater than those of the main former by an amount equal to the thickness of the laminated component, in this case eight 1.5mm veneers giving an overall thickness of about 12mm.

I used a table saw to cut the veneers, and though the support afforded by the fence and the rigidity of the blade made for fairly even cuts, a thin-kerf rip saw blade and matching



Cane and able: a piece of heavy-duty woodwork at work in India



...that was designed to accommodate eight 1.5mm veneers cut from beech

riding knife would have reduced the amount of waste. And while the veneers that came off the table saw had fairly clean faces, which I then dressed with a cabinet scraper, it would've been better to have planed the sawn face after each cut.

Generally speaking, however, a bandsaw is probably the better tool for sawing veneers because it will cut wider sections of timber than a table saw, and the thinner kerf of its blade means less waste. That said, it will usually leave a poorer finish than a table saw, and its blade tension and guides must be set up carefully; even then the blade can drift in deeper cuts, leaving you with veneers of variable thickness. After pre-bending my veneers by wetting them and leaving them in the former overnight, I glued and cramped them. After 24 hours and a little cleaning up of the edges with a block plane and the ends with a tenon saw, I had my curve.

### Juice the job

Talking of unusual shapes, I came across this curiosity only the other day at a roadside stall in Ahmedabad, India. It's a press used to extract the juice from raw sugar cane. Its two wooden rollers looked to have been carved from something rather like mahogany: the pressing faces were smooth as a crown green bowling ball, and are obviously pretty hard as they seemed unmarked by the woody husks of the cane. The helical gears connecting the driven roller to its opposite number appeared to mesh and run very smoothly. In its way, I thought it was as lovely a piece of wooden engineering as that propeller.



Though clearly hand carved, those helical gears seemed to mesh quite smoothly



# Keep it light

Cutting back to the original colours can be all wrong warns **Stephen Simmons**

**I** touched on the importance of light in the development of patina back in *GW240*, but it's worth looking at this subject in more detail because it has wider implications when it comes to restoration.

Over time light woods naturally turn darker and dark ones paler. Rosewood will, for instance, fade from purple and black to delicate shades of pink, cream and brown.

The more intense the light the quicker the process, but although it takes time to develop, the phenomenon is fragile: the colour change is only skin deep – just a few microns – and is easily destroyed. It's the exact opposite of the deep and permanent penetration of ammonia into oak: cut through that mellow rosewood and you're back to the vivid original colour – and there's nothing you can do about it.

## Positives & negatives

But first, here's something to think about. Current orthodoxy values patina and favours the mellowness it brings to antique furniture. While it is technically possible to restore colours to their original by cutting through the surface with a cabinet scraper, it is regarded as aesthetically and financially undesirable if not downright philistine. On the other hand, not all the effects of light are positive: wood colours tend to converge and the original contrasts are lost, even in the relatively short term.

I commissioned an oak and walnut corner cupboard 25 years ago and although it has never been in direct sunlight the planned exterior contrast of light and dark has all but disappeared. The loss of definition in antique polychrome marquetry, parquetry, and inlay can be even more pronounced. The mahogany cross-banding on 18th-century oak long-case clocks is now sometimes only distinguishable



▲ Pic.1 **Not fade away:** the inside of this late 17th-century oyster-veneered cabinet door still displays the fabulous original colour contrasts

from the oak by its different texture.

Original intentions, even the starkest colour contrasts, were an integral part of the design and should not be under-estimated, well illustrated in **Pic.1**. So, is orthodoxy always necessarily right or does it need tweaking a bit?

## Clean up your colours

Assuming we don't want to be classed as philistines, then cleaning is our best recourse. Light affects excess wax and the dirt it attracts as well as the wood itself, but the effect is slightly different – colours are dulled as the surface becomes more opaque. Contrary to common belief, this excess wax and surface dirt is not patina, and if sympathetically cleaned off you should do no harm.

If you do remove it, you'll probably find that either the true colours are revealed or emerge to an acceptable degree (**Pics.2** and **3**). It's

always worth a try, and if it doesn't work you've lost nothing. But ironically this film can form a protective barrier which slows the effect of light on the wood. Remove it and you may unwittingly accelerate the natural process.

If the surface has been sealed with a hard finish such as a varnish – including French polish – or lacquer, then try the home-made cleaner recipe below. This brew can be too strong for unsealed surfaces and fragile finishes, in which case treatment with Renaissance micro-crystalline wax is your best bet. It is designed to enhance faded colours as well as clean but don't expect miracles. It will give you a better idea of original colour contrasts and is more effective on detailed

## Cleaner recipe

Home-made cleaner is made with equal proportions of meths, vinegar, raw (not boiled) linseed oil and pure turpentine (not substitute or white spirit), shaken well together.

marquetry and painted finishes, but the result is limited on larger areas of a single timber and for restoring lightness.

Whatever cleaner you use, always apply it with a cotton rag rather than fine wire wool, as even the finest grade can be too abrasive.

## Damaging sunlight

Sometimes the effect of light – particularly direct sunlight – is more serious. It can result in incongruous visual effects or actual physical damage requiring more radical treatment, but again without cutting back to the original surface.

The three most common problems are the unused table leaf syndrome, the faded outer table in a nest, and the physical deterioration of French polish in direct sunlight.

An unused table leaf can stand out like a sore thumb when placed between the regularly used end-pieces, particularly with mahogany. There's no getting away from the contrast between brash redness and a faded brown. The answer is to get the two colours to converge by killing the redness of the centre leaf – or leaves – and darkening the faded ones, see GW234. It is important to clean the faded leaves first to determine the amount of fading in any excess wax – cleaned, the contrast with the centre leaf can often be far less stark.

Nests of tables suffer from a variant of the same phenomenon, spending most of their lives with only the larger table being exposed all the time and being used more. However, the contrast isn't always as obvious because, when in use, the individual tables are spread about rather than juxtaposed like the leaves.

If cleaning doesn't work, follow the process for darkening the used table leaves but if the larger table has suffered more use and abuse in the form of stains and ring marks you have what is, in some ways, an easier option – to strip the surface and start again. Then you can either stain the wood, tint the new polish, or go for a combination of the two to get the right colour match with the inner tables.

To stain, use a Van Dyck crystal base with water-soluble concentrates, as it's largely reversible if things go wrong. If you're using French polish, try using the darker garnet instead of button shellac to avoid additional tinting, but if you do tint use a spirit-soluble stain.

## Using French polish

In direct sunlight French polish can become milky and rough, but you don't have to strip and repolish. Instead, cut back the roughness with a 500-grit abrasive and, after dusting the surface, wipe it over with a moist rubber containing very dilute French polish. The milkiesshould begin to disappear with the first pass, so repeat the process two or three more times until the surface is clear. Leave it overnight to cure and then cut back gently with 0000-gauge wire wool and re-build the surface with full-strength shellac. Like cleaning, if it doesn't work you've lost nothing and you can get the stripper out with a clear conscience.



▲ Pic.2 This figure responded to a good clean



▲ Pic.3 Excess wax and the dirt it collects will also obscure colours; cleaning it off this papier mâché tray revealed how Southport beach really looked in the 1820s

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# Angle on chairs

**W**ay back in *GW264* I looked at setting up angles for a typical dining chair. Here, I'm developing the theme with an exercise over the new few months on how to make a chair. In so doing I'm bent on making a few improvements on an existing one.

## Preparing for the seat rail

The steam-bent legs, which are formed with a rounding plane and tapered with a trapping plane, flank a frame that tapers in width from top to floor, but they do not have any sideways splay. With the legs clamped onto a board (**Pic.2**), I used the electronic 'Bevel Block' level (see *GW206:27*) when tilting the drill table to the rail-to-leg angle.

Now, readers familiar with the Forstner bit (**Pic.3**) will know that it makes a flat-bottomed hole, but they probably also know how difficult it can be to see its rather tiny spur when trying to locate it on a centre mark. Because there was very little scope for error I adopted the tactic of first setting a centre punch in the drill chuck and aligning its centre with the target spot. With the punch replaced by the bit, I could confidently concentrate on drilling a pair of mortise holes about two-thirds through each leg, and also drill the spindle holes. It took a few moments to chisel the waste between the hole-pairs to form round-ended mortises.

Why round-ended mortises? Well, the seat



▲ Pic. 1 At this stage I could set about drilling the mortise holes for the arms



▲ Pic. 8 Getting down to drilling the lower back rail mortise holes

rail's edges must be rounded to avoid stressing the Shaker tape that will be used to weave the seat, so the rounded tenons merge neatly with rounded edges.

## Using the bench as a reference

The steam-bent back rails are curved, so their mortises had to be somewhat angled to the plane of the seat rail. To find the drilling angle I fitted the seat rail to each mortise and, taking care to set the seat rail parallel to the edge of the bench, I rested the rudimentary back frame against the edge of the bench top. By resting the top rail between the tops of the legs (**Pic.4**), I could scribe round the ends and thereby estimate the centre lines for the mortises. A length of aluminium angle acted as a saddle gauge to run these lines along the leg (**Pic.5**). To overcome the slight inaccuracy caused by the leg's taper, I went over the line using the other side of the leg as the datum

surface, splitting the result to arrive at precise locations for the mortise holes.

By this means I'd reached the moment when I could separate the legs and set each in the vice so that the mortise centre line scribed on the top of its leg was parallel to the bench edge. **Pic.6** illustrates the situation – albeit with the rail actually in place. After fixing the leg so it was inclined to the bench top at the seat to rail angle (**Pic.7**), I could sight the Jennings auger bit parallel with the bench top while using a small spirit level to check the

## Tip

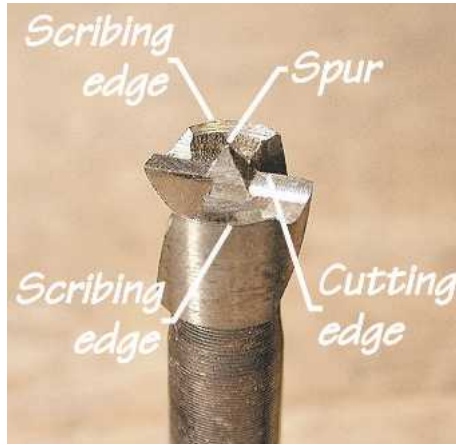
For occasional use, electrician's tape as a depth marker will serve well enough, but if I were doing this more often I'd drill a short length of dowel to serve as a more positive depth stop.



**Jeff Gorman** takes a steady step-by-step approach to building chairs and this month drills mortises for the arms



▲ Pic. 2 Here you can see the set-up for drilling the seat rail mortise holes



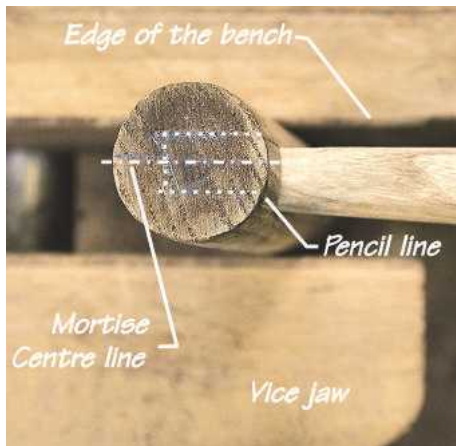
▲ Pic. 3 And here's the anatomy of a Forstner bit



▲ Pic. 4 Using the rail's end as a templet to locate the mortise



▲ Pic. 5 Using a strip of angle as a saddle gauge to run the centre line down the leg



▲ Pic. 6 Jeff reinforced the marks made while scribing round the rail's end



▲ Pic. 7 Here's the set-up for drilling the top rail mortise holes

## Tip

When using Jennings (or Irwin) pattern bits, don't press too hard. Let the screw pull the bit into the work.

horizontal level. (Instead, I could have asked a helper to do the "Up a bit! Down a bit! Okay!" act for me). When I'd got it right, I held my hip firmly against the bench and gingerly bored the hole. I had to remember that this drill bit terminates with a rather long screw (**inset, Pic.7**) that could easily poke through to the other side of the leg. This 'joiner's brace', by the way, incorporates a ratchet that meant I could sweep the brace through an arc of about 90° without my hand hitting the bench top.

Once each mortise had been cut and the rail tenons coaxed into place, I created the set-up shown in **Pic.8**. This time it was more convenient to use a lip & spur bit in a power

drill. Having one end of the top rail in place meant that I could check the alignment of the leg (**Pic.6**), sight the drill parallel to the bench rail and again use my dinky spirit level.

## Present arms

The arms' front-to-back rake and their sideways splay presented the final hole alignment problem. This was fairly easy to tackle because, as **Pic.9** reveals, the configuration of the Jennings bit/joiner's brace allowed me to set the bit's point at the right height for the arm's rear end and hold the brace's pad nicely level with the top of the support. Again the ratchet proved invaluable.

Of course, there's much more to making a similar chair, but I hope that this might be a useful guide for folk who might be thinking of tackling a similar project. My first design, and another stick and rail chair, can be seen at <http://www.amgron.clara.net/projects/Chairs/TomSuttonChair.htm>

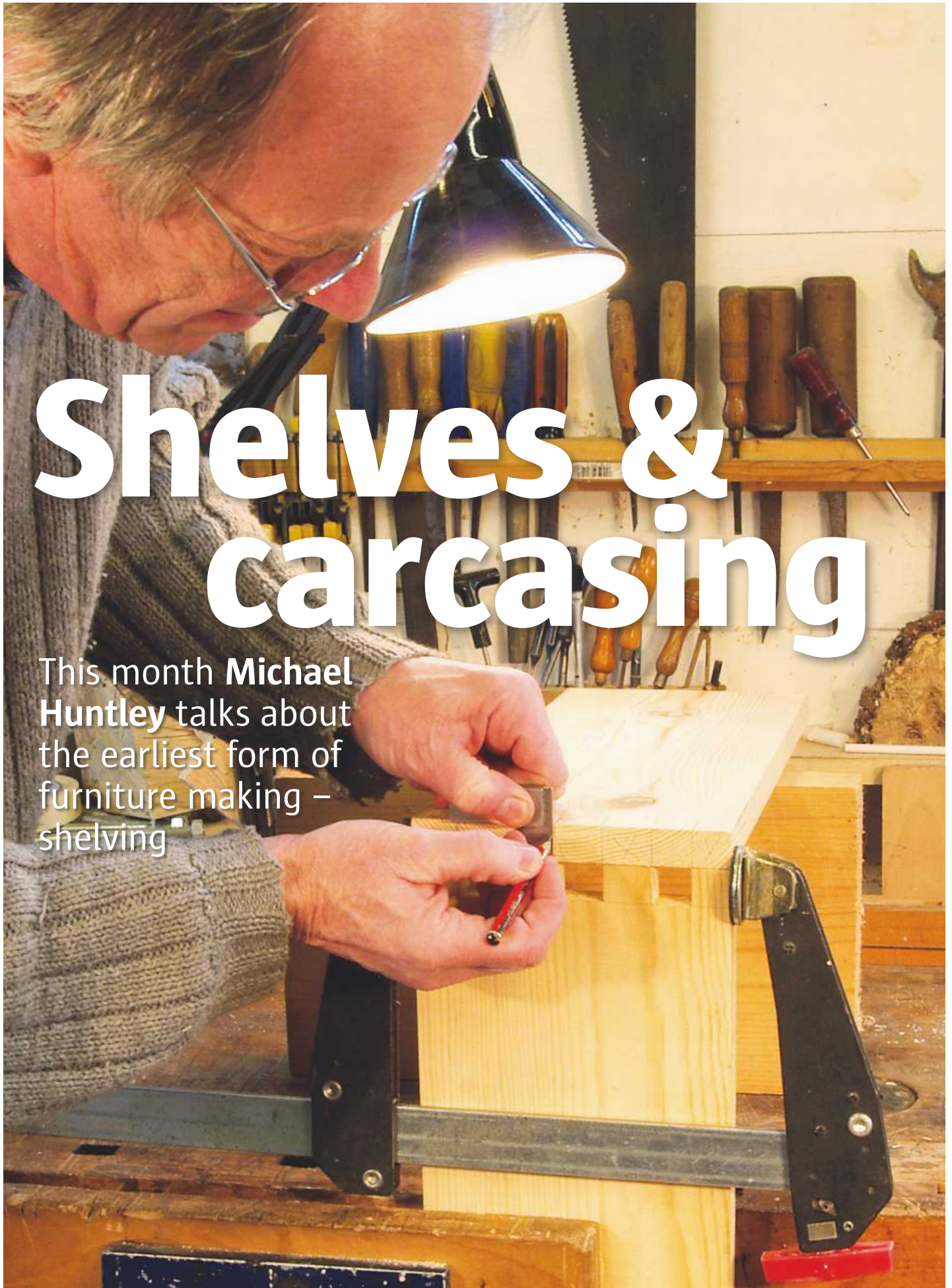


▲ Pic. 9 Aligning the drill for the arm's mortise hole calls for some electrician's tape

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# Shelves & carcasing

This month **Michael Huntley** talks about the earliest form of furniture making – shelving.





▲ Pic.1 Laying out the shelf spacing



▲ Pic.2 Cutting shelf housings to depth

**I**t is almost time to put together the first proper carcass. Furniture is divided up into 'support' furniture (tables and chairs) and 'containing' furniture (carcase furniture which ranges from bookcases to cupboards and chests-of-drawers). Support furniture has a more fragile structure than containing furniture, which is generally built 'foursquare'.

So the purpose of the preceding articles has been to introduce the apprentice to the tools and joints required to make carcasses. As I said right at the beginning, one of the most useful and simplest carcasses is the bookcase. The books sit on shelves and the shelves sit on side supports. Even stone-age houses had shelves, so shelf making, probably to keep food safe, is a very ancient tradition. The earliest shelf furniture type that we are likely to see is the oak sideboard from the 16th and 17th



▲ Pic.3 Taking an angled cut down to the line



▲ Pic.4 Coming back in from the other side to avoid breakout



▲ Pic.5 Hand routers come in two sizes and are very useful

centuries. The term 'board' was used for both central tables and tables against the wall, ie sideboards. In later years the mortise & tenon frame became boxed in, and then later still the mortise & tenon frame was replaced with solid sides held together by dovetail joints.

## Making shelves

We will start with simple shelves. Take two matching planks and mark them up for shelves. Think about the spaces between the shelves. It is common to have graduated gaps between the shelves often corresponding to the different sizes of books. You will also need to remember that the shelf has thickness, probably about 20mm. Mark both the top and bottom edges of the shelf and then measure the gap for the book to go in. It may take several attempts to get this right (Pic.1).

## Supporting shelves

You could support the shelves by screwing a batten to the side support and laying the shelf on the batten. It would work but it would be





▲ Pic.6 Cutting a stopped housing with an *azebiki*



▲ Pic.7 The stopped housing complete



▲ Pic.8 Finger joints marked up – good practice for dovetailing



▲ Pic.9 Cutting finger joints with the rip side of a specialist *ryouba* with very fine teeth

ugly because you would see the end grain of the batten. The usual method is to recess the shelf into the side plank. That means that you can have three measurements: overall width including side planks; internal width that you can use for books; and internal width plus recess depth which is the actual width of the

shelf. At this point it is best to draw it on a shelf and offer the shelf up to check everything before cutting.

If you are going to cut the grooves for the shelves by hand, saw to depth, just inside the line (Pic.2). If you are going to use an electric router, scribe a knife line along the edge of the

cut to give a clean edge. You will see that I am using a Japanese saw with a depth gauge, but you should learn to saw to depth freehand.

## Cramps & saw horses

We also need to know how far apart the sides of the bookcase are. The further apart they are, the more the shelf will bow. Depending upon loading, you normally have shelves somewhere between 600 and 700mm wide. But you can do a simple test. Take your shelf, stand it on some bricks placed 700mm apart and load it up with books. You will soon see what the maximum spacing for supports should be. Always build in a safety factor because you may have lightweight books but the next person may collect rocks! If your bookcase is fitting in an alcove remember to fit the side planks within the alcove. You don't want to cut a load of shelves alcove width and find that they all have to be recut to take account of the side uprights.



A close up of the little saw horses that I use to raise up work to a comfortable height on the bench. You can easily make them up from offcuts; they don't have to have shaped legs!

## Trenching waste

Once sawn you can carry out the next stage of 'trenching' by chopping the waste out with a long chisel (Pic.3). Bevel up or bevel down? This will depend upon the grain. Look at the end grain of the shelf and see whether the growth rings look as though they will encourage splitting into the waste or into the bit you want to keep. The alignment that you have chosen for your side plank may have a bearing on this. So might knots. If you have to chisel through a knot, and it will happen at some stage, stay bevel up and take thin slices off the knot. That way it is less likely to break uncontrollably.

It goes without saying that your chisel must be freshly sharpened. Don't try and take too much out in one go; it's better to do lots of accurate small cuts (Pic.4). Once you have removed the majority of the waste, you can use an old-fashioned hand-router to clean up the bottom of the groove (Pic.5).

One problem of having trenches going all the way through the side board is that the vertical line of the carcass is broken by the groove. You



## Tip

**Sash cramp advice** You will need some cramps to make carcasses. Get good ones because the bars of cheap ones bend and the threads don't spin easily – vital if you are gluing up in a hurry. Always raise the cramp bar above the work. That stops the cramp staining the timber and also lets you get a rule underneath the bar, and also place a wet rag under the bar to wipe off excess glue.



The heads of Michael's sash cramps have little cork pads fitted to them with double-sided tape, subsequently repaired with masking tape. They stop the cramps bruising the work

can avoid this by 'stopping' the groove. Start the saw cuts in the usual way, but angle the saw so that it doesn't cut right to the end of the groove. Use the normal saw for as long as you can to make a hypotenuse cut. The far end will not be to depth. Use a Japanese *azebiki* (Pic.6) to cut down to depth; the *azebiki* is a most

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useful saw, with curved cross and ripping blades. Then chisel and rout out the waste in the normal way, but go gently as you approach the end of the stopped housing (Pic.7).

## Finger-jointed shelves

Now, it is always a good idea to read project instructions through before starting, because in this case there are two 'special' shelves: the top and bottom ones, which require particular joints. They could be dovetailed, but as we haven't covered that yet, I suggest that you cut finger joints. These are like dovetails but without sloping sides. Marking and making finger joints is good practice for making dovetails.

Set out some 'fingers' on the base of the side pieces (Pic.8). I have chosen 25mm fingers but they can be any attractive spacing. In general, furniture looks better if the side supports come straight down to the ground and the horizontal base is jointed into the side – as furniture designs developed, this horizontal base was raised up slightly to give a space underneath the carcass and make the whole piece look lighter.

So when designing your finger joint let the finger facing front on the side board go down to the ground. Therefore the next one along will be 'waste' and get chopped out. Continue marking the waste right across the board, then carefully saw down to the line, keeping the saw in the waste (Pic.9). For this you will want a rip saw.

Don't leave too much of the board projecting above the vice otherwise you will get unpleasant vibrations. Of course the side panel may be too long for a vice anyway if the finished article is full height, and then you will need to work on trestles. In that situation you cannot easily see the reverse of the board so the saw with a depth gauge becomes very useful.

The waste is then removed with a coping saw. Cut in diagonally towards one corner, free that piece and then cut across just above the base line to free the second piece (Pic.10). Then chop out the last bit down to the base line.



▲ Pic.10 Cutting out waste with a coping saw, but you could use a piercing or fretsaw

To chop out waste, set in a baseline with a wide chisel, not too heavily, then select a smaller chisel and, using your set-in line, make three clean downward chops across the baseline. Turn the board over and do the same on the other side. One more set of smart chops should free the waste (Pic.11).

Then set up the mating piece and mark the fingers with a fine pencil or a scalpel (Pic.12). Carefully mark which is waste and cut and chop this away. You should now be able to join the two boards together to start to make up the carcass. This carcass-making exercise with finger joints is good practice and preparation for a dovetail carcass in a few weeks time.

## NEXT MONTH

Michael looks at the other major carcass process, mortise & tenon carcassing.



▲ Pic.11 Cleaning up to the line: a very slight undercut will help



▲ Pic.12 Method of transferring marks for the fingers as a practice for dovetails



# Top gun

Has Shane Skelton hit the Holy Grail with his dovetail saw? **Andrea Hargreaves** meets the man who engineers shiny miracles in a tiny garage workshop near Scarborough



It takes a certain skillset coupled with a brave entrepreneurial spirit to come up with what is being called the perfect dovetail saw: gunsmithing, engineering, aeronautics, antique furniture restoring... not a combination that many can boast, but happily for those in search of a really great dovetail saw, one that Shane Skelton has on his CV.

So bear with me while I skate through this Scarborough-based man's career path, because it all has a bearing on the person he has become and the saw that he has developed.

At 15 he was working for a gunsmith, doing everything from repairing springs to alterations and at 16 had restocked a Purdey. Then, and this became a bit of a pattern, he found himself out of work when the company closed down. So he started building components for the oil and gas industry, making connectors for oil wells. Redundancy followed. Next he joined a company making kit planes by hand for the US market. But the workshop moved and he returned to engineering.



▲ The peacock insignia is Shane's bow to the Yorkshire tradition of creatures begun by the Mouseman, see *GW290*

▲ Shane with the fly press used in the fitting of the medallions





## What the users say

When you are a small manufacturer without a marketing budget how do you set about presenting your product to the woodworking world?

Well, Shane took it to last year's Harrogate show and gave one each to well-known furniture maker Chris Tribe and tool guru David Charlesworth, both of whom teach students, and sent one down to Mark Cass for testing.

"It's fantastic," Chris enthused. "It's a pretty amazing saw. Shane's a very skilled bloke. He's come out of nowhere with the perfect product. I'm impressed."

Now Chris is not a man to be easily pleased, and nor is David whose detailed and complex qualifications when asked to evaluate a tool are respected to the point of awe. "It's fantastic," he said. And that was it. Nothing else. Zilch. Nada.

So I asked joiner, cabinetmaker and *The Woodworker* editor Mark Cass to try it out in his workshop. After cutting some dovetails he concluded: "The ease with which the blade entered my test piece of sycamore – admittedly not the hardest timber in the world – took me somewhat by surprise, and I'd made the first cut almost before I'd realised it. So it was with the rest of the dovetails; a few strokes and I was there.

"The correct rip saw set for this job makes a huge difference; I found the Skelton cut so well that it was easier to go right than wrong. Fortunately things turned out fine, but the real star of the job was the saw. My big fear now is that the rest of my kit is going to have to work twice as hard to maintain this new standard of workmanship!"

## Back to the bench

However, after three years he realised he was missing the woodwork, particularly the carving that he had learnt with his grandfather, whose tools he still uses today. After taking a furniture-making night course at Bridlington he joined a cabinetmakers outside York called Tomlinsons who were then the biggest antique restorers in Europe. Although not fully qualified his work impressed and he was variously working in 16thC pippy oak or maybe on Restoration furniture, a chest of drawers needing new feet and drawers. He'd also be making new keys and locks, fixing grandfather clocks and sprucing up Georgian furniture.

He worked on an 8-leaf table that subsequently sold for £35,000. "The stuff was shipped out to American dealers who couldn't get enough of it but the bubble burst," he recalled. And so did that job, the company now operating as a dealers with showroom.

So Shane went back to engineering and is currently R&D manager of RMS Pump Tools. When we called he had a patent going through naming him as sole inventor of a product that must remain secret for the time being.

## Shane's saw

Meanwhile his own dovetail saw is being sold worldwide. It features a rigid, thin and shallow blade made from best-quality Swedish spring steel cut from 18 thou plate, and bears the motif of a peacock with an acorn in its beak, in brass on a rosewood handle. Shane notches every single tooth by hand using the setter he modified to achieve two a side set.

He decided to have a go at saw making last summer after buying kit from the States. "Their teeth had been machined and needed filing," he said. "I thought I could source better stuff than that. I went through a mass of



Like a knife through butter...



...Mark cuts perfect dovetails

handle patterns looking at eras before deciding on early Georgian, a Kenyon design from 1760." Coincidentally one of the directors was called John Kenyon Skelton but Shane doesn't know if they were related.

He chose rosewood over walnut and put his medallion on the front, laying it flush and keeping everything crisp, in a teardrop shape.

"When the saw is made it is sharpened to perfection so it cuts perfectly straight – most saws don't cut in a perfectly straight line, and veer off. Every saw is tested in oak. The teeth are filed and set. The edge is taken off by running a diamond stone down each side twice. They have 15 teeth to the inch rather than the usual 20 and very fine set on 18 thou, cutting teeth in with the weight of the saw, slicing rather than chopping, which increases the speed of work. This, combined with the heavy brass back, gives speed and precision, the same sort of idea as with a Japanese saw."

Currently Shane is making an average of only four a week, but no matter: "Building the Mosquito in 24 hours was the last era of doing proper woodwork with proper tools. I want to bring manufacture of this class back to the UK."

## The **Good** Woodworking Verdict

+ Precision engineering; perfect balance; very narrow kerf

– Expensive

**Rating ★★★★★**

**Price: £245**

**Blade length:** 10in

**Blade taper:** 1<sup>11</sup>/<sub>16</sub>in (heel) to 1<sup>1</sup>/<sub>16</sub>in (toe)

**Teeth per inch:** 15 (16ppi)

**Rip-cut set:** 8° rake angle

**Cross-cut set:** 12° rake angle, 15° flean

**Handle:** open pistol-grip rosewood

**Web:** www.skeltonsaws.co.uk



# Acoustic lap guitar

**Phil Edwards** makes his classic instrument from workshop finds

**A**s a guitarist *and* a woodworker, I've been eager to have a go at building my own guitar for a long time. While surfing the 'net I came across some full-size plans at a reasonable cost and finally decided to take the plunge.

However, when I began to price up suitable pieces of timber for the guitar I found that it would cost much more than buying a similar guitar brand new, so I decided to build the guitar from materials that I had in the workshop. By doing this I would be able to build the guitar for next to nothing and I wouldn't need to be too precious about making mistakes – ruining expensive and rare timbers is always an agony!

## The guitar

I've been a big fan of Ben Harper's music for a long time; he often uses Weissenborn guitars to get his unique sound. Hermann Weissenborn made these guitars during the 1920s and '30s when Hawaiian music was very popular. The guitar is played flat on your lap and features a hollow neck, sounding somewhat like a Dobro or National guitar and using similar open tunings. You play it using a slide, there being no actual frets, just markers.

I decided to build a lap slide acoustic guitar using the Stew-Mac plans but had to decide on suitable timber – the originals were made from Koa, an Hawaiian timber that is dark like walnut. This timber is now rare and has a suitably exotic price. After doing some research, I decided to use sycamore for the top



## Jigs and templates

Before beginning work on the guitar, it's worth making a few items to aid in its construction. I made a full-size template of the guitar's outline on 12mm MDF and a backing board, slightly larger than the guitar's outline, from an offcut of kitchen worktop. This was perfect as it was flat, stable and glue wouldn't stick to its laminated side.

## Stock preparation

To begin the project I ripped 3.5mm ( $\frac{1}{8}$ in) thick slices from the planks of padauk and sycamore, cutting more than I needed in case of emergencies. A high fence on the bandsaw made life a lot easier, while in-feed and out-feed rollers are a must when trying to man-handle large planks through the bandsaw.

I then edge-jointed the pieces to glue up the soundboard and back. To edge-joint the thin stock I placed a piece of 6mm ( $\frac{1}{4}$ in) MDF flat on the bench, put one of the workpieces on top of the MDF, but sitting slightly forward, and then placed a second piece of MDF on top, slightly behind the front edge, as a sandwich. I then placed my jointer plane on its side on the bench top and proceeded to shoot the edge of the stock. This is an easy way to work, and

and sides and padauk for the back. I had supplies of both of these timbers that had been seasoning in the workshop for years. Both planks were also quartersawn, which is very desirable for instrument making as it is more stable.





▲ Pic.1 Phil used a half template for the top and bottom of the guitar



▲ Pic.2 Cut 3.5mm slices of padauk and sycamore for the top and bottom. Here you can see the sycamore book-matched for the top plate



▲ Pic.3 Mark out the sound hole – careful measurement is needed to find the centre location!



▲ Pic.4 The inner and outer lines for the rosette were cut and the sound hole lightly scored; waste was marked out



▲ Pic.5 Phil used a hand router to remove the waste, which created a tight fit for the rosette



▲ Pic.6 Glue on the braces – start with the graft between the cross braces to provide positive location. Cauls and long-reach clamps are necessary to get proper clamping pressure

ensures you get a 90° edge.

With both pieces edge-jointed, I butted them together and checked for a good fit – any gaps would mean you'd need to re-join them for a seamless join. The next step is to glue the pairs of pieces together. Normally I would clamp the two pieces together and 'job done', but as the stock was so thin this was not possible. I clamped one piece to the bench, applied glue to the edge and then rubbed the second piece back and forth to give a 'rubbed joint', then I left them to dry overnight.

Next, I had to work the pieces to a uniform

thickness as they were still left with saw marks from the bandsaw. I used a hand plane to remove the majority of the marks and stopped frequently to make sure the thickness was uniform over the pieces. A scraper and sanding block finished up any difficult areas of grain.

## The rosette

To inlay the rosette into the top (the beautiful ring which surrounds the sound hole) I chose a rather low-tech method instead of a router and jig. This involved using a small off-cut of timber, a nail and a scalpel blade (see 'Circle cutting jig' for details) to make two cuts to mark the inner and outer rings of the recess for the rosette. I was amazed how well this simple jig worked – it was also quiet and fairly stress-free to use! The excess material between the rings was then removed with a small router, set at the thickness of the rosette. Glue was smeared into the recess, the rosette was pressed into place and a caul clamped over the top to keep it flat while the glue dried. The rosette was then scraped and sanded flush with the soundboard. The final

step is to remove the sound hole – again I used my little jig to cut the circle completely free of the top.

## Braces and grafts

The back and soundboard of the guitar have a series of braces glued across them to provide strength – the thin material is not strong enough on its own. Certain areas (the centre joints and the bridge area) are also reinforced with grafts. I ripped down some quarter-awn Douglas pine into 12 x 8mm ( $\frac{1}{2} \times \frac{5}{16}$ in) lengths. Referring to the plans, I glued the braces onto the inside of the soundboard and back. Some long-reach clamps will be necessary to reach the centres of the braces, even using cauls.

With the braces in place I filled in between them with the grafts – these were cut from offcuts of material used for the soundboard and top. Finally the graft beneath the bridge was glued in; this was made from 6mm- ( $\frac{1}{4}$ in) thick rosewood.

When the glue had dried I trimmed the braces down in size using a chisel and block plane. This is to lighten them and make the guitar more responsive, although it is important not to make the braces too





# The big project



▲ Pic.7 After you've pared down the braces with a chisel, the soundboard is complete

weak. I shaped mine to a slightly rounded pyramid profile.

## The fingerboard

As mentioned above, this guitar doesn't have actual frets as it is designed to be played with a metal slide or bottle-neck, but you still need to know where you are on the fingerboard, so I inlaid maple veneer at the fret positions. The position of the frets was marked onto the board and the slots were cut using a tenon saw. I made test cuts with a few different saws to see how wide a kerf they produced and chose one that matched the maple veneer I had.

I placed an offcut of MDF next to each marked line to guide the saw as I made the cuts. They came out surprisingly accurate. I then glued a slice of maple veneer into each slot using PVA and set it aside to dry. Remove the excess glue and veneer using a paring chisel and sand the 'frets' flush with the fingerboard.

## The sides

My initial plan was to hot bend the guitar sides using a 'hot pipe' in the traditional luthier style. But experimentation with my home-made pipe gave less than acceptable results, so I went for Plan B. This involved making a

## Circle cutting jig

There are a few circle-cutting jigs available to use with a router but I was able to put together this simple jig from scrap which performs just as well and makes no noise in use. Take an offcut of wood – maple in my case – the size of a lollipop stick, a small nail or pin and a scalpel blade. The nail is pushed through the stick about 10mm in from one end, and is pressed into the workpiece in the centre of the required circle. The scalpel blade is then pressed through the stick at the desired radius away from the nail. Hold the nail firmly onto the workpiece and rotate the stick. After a few gentle rotations your circle is cut, with lovely clean edges.

You can limit the depth of cut by how far you press the scalpel blade through the stick – it's low-tech, but it works beautifully. And no screaming router inches from your face!



▲ Pic.8 Edge-joint the two pieces of the back. Only gentle clamping pressure is required with such thin stock

former to laminate the side over using multiple layers of veneer. I have a vacuum press and had used this method before so was fairly confident of a good result.

The former was made from glued-up pieces of 2in- (51mm) thick poplar, bandsawn to shape and sanded smooth. I applied a coat of filler to the face of the former to ensure it was smooth and blemish free.

Six layers of veneer were used (figured Anigre) to achieve the required thickness for the sides. After applying plenty of glue with a roller (Wudcare 5 Minute PVA) I taped one end to the former and slid the whole lot into the vacuum bag. Once the bag was up to pressure I could relax while the glue dried. After an hour in the bag I repeated the procedure for the second side piece.

After leaving the side for the glue to cure I trimmed them close to final width on the bandsaw – an interesting exercise due to the curved shape of the piece. The upper edges were then planed smooth with a sharp hand plane, taking very fine shavings. Check the fit of the sides to the soundboard to see how you're progressing. Each side is then crosscut at the centreline of the guitar.

The tail block is a large piece of timber



Phil's 'high-tech' solution for cutting clean, accurate circles!



▲ Pic.9 The back needs to be scraped, then the braces can be glued on. Again, long-reach clamps will be needed for the brace middles

## Tip

It's always a good idea to attempt a dry fit before gluing components together – this way you find gaps, etc, before it's too late!

which joins both side pieces together at the bottom of the guitar. As the sides are curved the profile of the block needed to be a perfect match to get a good join. I glued it first to one side piece, then trimmed the second side for a perfect fit.

## The linings

The sides, soundboard and back were all made from very thin stock, which means there was not a lot of surface area for the glue to hold the guitar together. To resolve this, I applied linings (glue blocks) to the upper and lower edges of the sides, which massively increase the surface area being glued, but add very little extra weight.

I made my linings from sapele – rip strips 20 x 5mm and 300mm long ( $2\frac{5}{32} \times \frac{3}{64} \times 12$ in). These were then tapered along one side to reduce their weight and the strips were 'kerfed' to make them flexible – otherwise it would be very difficult to make them follow the curves of the guitar sides. I used the bandsaw and mitre gauge to almost cut through the strips, making cuts every 6mm ( $\frac{15}{64}$ in) or so. This gives a bendy strip of blocks which easily follows the contours of the guitar.

Lots of clamps are needed to clamp the linings in place – otherwise you have to tackle the task in stages. Glue the linings on the upper edges of the sides so they are slightly proud; once dry you can trim them perfectly flush. Mark the position of the guitar braces onto the soundboard and leave out linings at these positions.

With the glue dry, plane the linings flush with the edge – again, test fit the side on the soundboard and check for high spots.

## Glue up

With the soundboard face down on the backing board, apply glue to the upper edge of the side and linings and clamp carefully in position. It's possible to glue both sides in one



# Weissenborn guitar



▲ Pic.10 Also, use off-cuts of wood as cauls to cramp the grafts in place



▲ Pic.11 The soundboard and back are now complete – next stop, it's the sides



▲ Pic.12 These were made with several layers of veneers, each clamped tight to a former and put in a vacuum bag



▲ Pic.13 Once dry, remove the piece from the bag and slip off the former – wax the former to ensure glue won't stick to it



▲ Pic.14 Apply glue to the layers of veneer with a roller to get a smooth, even coat, then pop in the bag



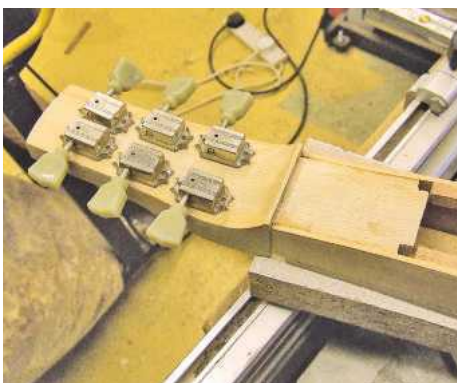
▲ Pic.15 Plane the bottom edge of the side flat so it will mate perfectly with the soundboard



▲ Pic.16 Remove excess on the top with a bandsaw. A dry-fit will ensure you find gaps before getting the glue out!



▲ Pic.17 Glue kerfed linings in place on front and back. The glued headstock aids alignment. Note the tail block and solid linings in the neck



▲ Pic.18 The tuners were test fitted to ensure they fit without binding



▲ Pic.19 After sanding, place the backer board behind the guitar to spread the clamp pressure and avoid marking the soundboard



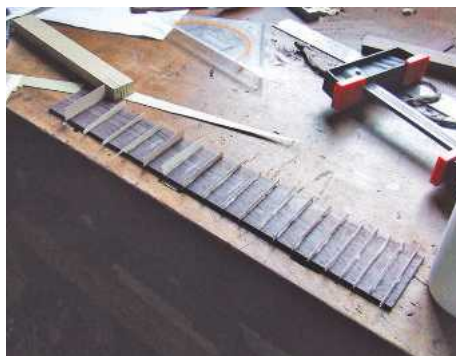
▲ Pic.20 You'll need lots of clamps and small cauls to spread the pressure on the curved sections



# The big project



▲ Pic.21 Plane the rosewood fingerboard to size and cut fret slots using a tenon saw and a block of timber as a fence to give accurate, square cuts



▲ Pic.22 The maple veneer 'frets' were glued in place with PVA. When dry the excess was pared away and sanded flush



▲ Pic.23 Glue the fingerboard in place using cauls to spread pressure and prevent damage to the delicate structure



▲ Pic.24 Here's a close up of the body binding – layers of veneer, comprised of walnut, maple, then walnut again. It's a tiny detail but the effect is impressive



▲ Pic.25 The rosewood blank for the bridge was prepared...



▲ Pic.26 ...and glued into position – Phil used a modified clamp for extra reach in the soundhole

go but I prefer a simple life. When dry the second side can be glued on – this time you will need additional clamps for the tail block.

## Headstock

I made a template from the plans for the outline of the headstock, cutting it out on the bandsaw from a piece of sycamore. I originally made one from padauk to match the back, but preferred the look of the sycamore. The tenon, which was glued inside the neck, was marked out directly from the guitar, ensuring a perfect fit. The curves were smoothed and blended on the spindle sander. After this you need to mark out the position of the tuning pegs and drill the holes on the drill press.

## The back

The upper edge of the sides was now planed to its final shape – the body tapers thinner towards the headstock. I made a big sanding block from a 600 x 100 x 19mm (23½ x 4 x ¾in) piece of MDF with 120-grit abrasive paper

“ I added a binding around the soundboard using walnut veneer to create a contrast ”

glued to it. This was used to ensure the sides are 'coplanar' and to blend the taper smoothly into the body.

The headstock was glued into position next, which stiffens up the structure a lot. Kerfed linings can now be glued around the upper edge of the sides and then planed and sanded flush, as previously. Additional linings are glued into the gaps on the soundboard above the braces. The section of the hollow neck that is straight has a solid piece of sapele glued to it in place of the kerfed linings to strengthen it.

Place the back onto the guitar and mark out the position of the braces. The linings will need to be relieved to allow the back to fit flush. After numerous dry fits it is time to glue the back on – again, plenty of clamps will be needed. Apply a nice bead of glue around the

linings and start clamping from the back of the guitar towards the headstock. Set aside overnight to dry.

## Clean-up and binding

With the glue dry, the clamps can be removed – leaving a guitar! Finally the guitar can be tapped to reveal its acoustic character.

The back and soundboard need to be trimmed flush to the sides – I removed the majority of the waste with a paring chisel and then scraped them flush using a cabinet scraper.

I wanted to add a binding around the soundboard and decided to use some walnut veneer for this to create a contrast. Using a router with a bearing-guided cutter I made a rebate around the upper edge of the guitar and





▲ Pic.27 Sand and scrape the guitar, removing any traces of glue squeeze-out



▲ Pic.28 The coat of oil was applied and wiped off after five minutes. Six coats of shellac were then applied



▲ Pic.29 Pre-drill the holes before screwing the tuners in position

## Say that again...?

- Phil describes a **caul** as, "A piece of wood used to spread pressure from a clamp over a wider area." See Pic.5 for more – they're the wooden blocks under the tops of the braces
- Those who know their geometry will know that a **coplanar** is when several points all lie in the same plane. It doesn't matter where on the plane the points lie, as long as they are level. In the case of the guitar, Phil means that, despite the curves on the sides, each side lies on the same plane as the other.

squared up the ends of the rebate with a chisel. Then I glued strips of walnut veneer in place with PVA and clamped using lengths of masking tape. When dry, the binding was sanded flush with the body.

## Fingerboard and bridge

The fingerboard, prepared earlier, can now be glued in place. I took careful measurements to ensure it was square and central to the neck and then glued it in place using a large offcut of timber as a caul.

The bridge was made from a piece of rosewood – using the plan as a guide I gave the bridge a graceful shape and drilled for the strings. A 3mm-wide slot for the saddle was cut using a router, and the saddle was made from a piece of 3mm-thick brass. Careful measurement is again needed for the positioning of the bridge – it has to be spot on or the intonation of the instrument will be out, making it play out of tune as you go further up the neck. I modified a clamp to allow it to reach the bridge through the soundhole, which made the glue-up much easier.

## Finishing

The guitar is now almost complete – I gave it a comprehensive sanding all over, then I could apply the finish. I wanted to avoid a glossy lacquer finish and go for a more 'vintage' appearance. A coat of Danish oil really brought out the colour and figure of the timbers. Once this had dried I applied six coats of blonde shellac, which sealed the timber and added a slight sheen, while



“ I carefully measured the fingerboard to ensure it was square and central before gluing it in place ”

also completing that 'vintage' look. The fingerboard was finished with a coat of lemon oil, no shellac.

## Tuning pegs and nut

The tuning pegs (Grover tuners from a Les Paul) were fitted next – remember to pre-drill for the mounting screws or there will be tears! Screw the bushings in from the front, being careful not to slip and scratch the headstock.

The nut was made from some more 3mm-thick brass and measured 52 x 9mm. The slots were cut with a needle file and gently softened with fine sandpaper. A drop of superglue holds the nut in place until the strings are put on.

## Strings and things

Finally the guitar can be strung up, an exciting but stressful event! As the strings were brought to tension I expected the guitar to implode at any moment. But it held together (and still is!) and the joy of hearing those first notes ringing out was amazing. I chose D'Addario strings, gauges 15 to 56, which is a pretty heavy set, but they sound wonderful. The guitar has performed faultlessly, and has bedded in very nicely. I feel another build coming on...

## Information

To get plans for the Weissenborn guitar and other instruments, go to [www.stewmac.com](http://www.stewmac.com).

The rosette was bought from eBay for £1.99, where you can also find tuners and other components.





Chris Bain has taken years to learn his craft

# CARVING OUT A NICHE

Chainsaw trainer **David Vickers** catches up with old friend Chris Bain who creates sculptures with his chainsaw



The owl takes shape



**C**arving a sculpture in wood has a venerable history going back for millennia, but in recent times it's taken on a new dimension in the form of chainsaw carving. In the US carving with a chainsaw is very popular, and there has been something of a real growth in the public's interest in this modern method of sculpting over here in the UK. It has the elements of artistry and creativity combined with danger that make it so very appealing – and be under no illusion; this is potentially dangerous stuff.

I visited Chris Bain, a chainsaw sculptor based near Portsmouth, to film a video about him creating one of his sculptures. Chris is a friend of mine whom I've known for years, when we were both delivering chainsaw training, and while I still deliver forestry and arboriculture training, Chris has moved on to





pastures new but kept his chainsaws busy. Chris's skills with a chainsaw are winning him commissions from private individuals, but also councils and park managers, so I went to find out more, and to make the film that we'd talked about for the last two years!

## Trial & error

Chris started to look for new ways to utilise his creative streak around four years ago as the recession really hit the forestry training industry, and since then he has had to learn through trial and error, perseverance and dogged determination, the methods used to sculpt in timber using a chainsaw and a limited range of finishing tools.

"In the US it's a much bigger business, and because of that they have tools available to them that just aren't available over here yet,"

“Be under no illusion; this is potentially dangerous stuff”



It's amazing the detail that can be cut with just a chainsaw...



...but kickback from a broken chain could spell disaster if you don't know what you're doing





Texturing tools...



...are used to work the fine detail



A fine owl sits watchfully on its perch



...And relax

Chris tells me. "I've had to learn everything from scratch and find out how to use the saw to create different shapes and textures."

Four years on and Chris makes it look simple, but I know from my own experience that progressing from even the most basic mushroom is a lot harder than it looks. He does offer chainsaw-carving courses a couple of times a year to those that fancy trying it out,

but you'll need to have undergone basic chainsaw training and assessment before you're allowed to attend.

As Chris tells me: "It's critical to know how to handle a saw safely before doing this sort of thing, which chain and guide bar combination to use, how to hold a saw and position yourself so that if you do get kickback or the chain snaps you won't get hurt."

## About the author

David Vickers started Drivelink Training after leaving Sparsholt College, where he had managed forestry and arboriculture short courses for nine years. David is a qualified teacher and is a City & Guilds NPTC-recognised trainer and assessor for land-based skills.

Drivelink Training provides high-quality training related to chainsaws, felling, tree climbing and aerial rescue, including dealing with windblown trees, assisted felling, aerial cutting with a chainsaw as well as dismantling and rigging of trees.

Find out more at

<http://drivelink.training> or follow Drivelink Training at <http://facebook.com/drivelink>.

Contact David at [david@drivelinktraining.co.uk](mailto:david@drivelinktraining.co.uk) or call 07900 677715.

## Magical themes

Although Chris created an owl for the video, in his yard were various large pieces of timber that were being transformed into something magical for a local school library; his pieces often have a fantasy element in them, with trolls, dragons, castles and wizards being created from a tree stem.

"I'm often not exactly sure what I'm going to create but the wood... well it sort of shows you what to do with it," he says somewhat coyly. Watch him work and you'll see what he means. He may have an idea of what the sculpture will be about but not what the finished form will be like as it is shaped through its three dimensions. It's utterly magical and you can watch some of that magic happening in the video we created at <https://vimeo.com>.

Find out more about Chris's work at <http://www.thechainsawsculptor.co.uk>



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## TIMBER SEASONING SHELTER

English beech harvested at Hooke Park, Beaminster, Dorset

“ Hooke Park’s timber seasoning shelter is a canopy for the storage and air-drying of timber. Students of the Architectural Association’s Design & Make course completed the project at the AA’s woodland campus in Dorset in 2014. The canopy is constructed from a reciprocal grid of steam-bent lamellas fabricated from Hooke Park’s beech trees, and provides rain-shelter for stacked timber to air dry in preparation for use in future student-designed buildings at the site. The project developed following the students’ investigation into the forestry activities of the Hooke Park woodland and its potential for providing construction material. The annual thinning of European beech trees planted in the 1950s creates large volumes of timber with value only as firewood, despite being one of the strongest and hardest species grown in England. Identifying a long tradition of its use in steam-bent furniture, the students began to research methods for using beech in an architectural construction.

They designed an adjustable pneumatic steam-bending jig that allowed each 2m-long plank to be bent to a unique curvature according to its place within the structure. The students worked with the Hooke Park forester to identify specific trees to be felled for the project within the greater forest management scheme. The hexagonal reciprocal pattern meant that a continuous structure could be built out of relatively short pieces of timber.

### Treated with boron

As a timber species, beech has great strength properties but is rarely used in construction due to concerns over its durability. In this project the beech has been treated with boron, an inert deterrent to fungal and insect attack, and is protected from rain but is exposed visually to allow on-going inspection of the material. Bath University’s engineering department carried out mechanical testing on the timber to determine how the act of

steam bending affects the structural behaviour of the wood.

Large patches of the roof were pre-assembled and then craned into position and stitched together in-situ. The construction work was carried out by the Design & Make students themselves and with participants in the AA’s SummerBuild programme. The PVC-polyester membrane is tensioned by ‘push-ups’ formed by extensions of the bolts that connect the beech lamella elements and by tension lines connected to a perimeter beam of doubly curved glue-laminated elements.

Other student teams on the Design & Make course are working on different buildings within the campus development, including new accommodation buildings and a boiler house for a biomass district heating system that will be fuelled by Hooke Park’s forestry waste. The timber seasoning shelter is now being used to shelter timber for use in these future projects.

”  
**Martin Self**





The shelter required ingenuity and some force...



...but is now taking shape...



...and is ready for its waterproof cover

## Wood Awards 2015

This project was shortlisted in the 2014 Wood Awards competition. Next year's Wood Awards: Excellence in Architecture and Product Design is now open for entries. The competition is free to enter and open until 26 May. If you have been involved in an architecture or design project in the UK – completed since January 2014 – that uses wood, also see News pages. Please apply via [www.woodawards.com](http://www.woodawards.com)



The complex structure is ready to store timber for future building projects





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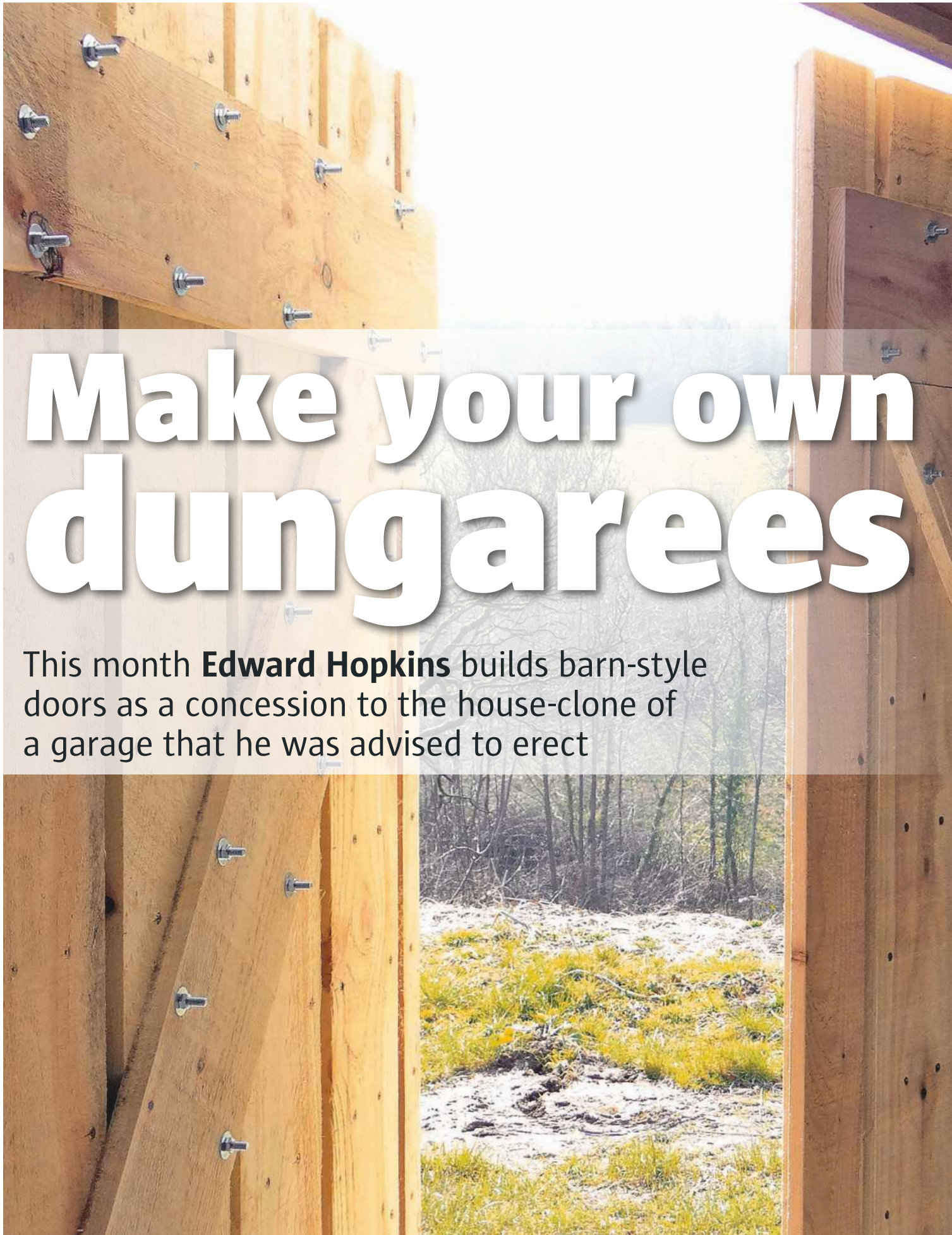
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# Make your own dungarees

This month **Edward Hopkins** builds barn-style doors as a concession to the house-clone of a garage that he was advised to erect





The batten offcut in the middle has tape wrapped round it so as to achieve the correct width for the gaps. Two of these were used as spacers as the boarding was assembled. What weren't allowed for were minor variations in the 8in width, but serious trouble was escaped

**M**y house has had a baby. I was worried that it was going to be a fat baby; an elephantine presence in our garden: it might be ugly, blank and bland; after all, its parent is no thing of beauty, all concrete and plastic. I had asked the Planning Officer if I could adopt another style for the garage. I fancied a long, low, leaning, corrugated iron shed detailed with loving care; a wedge lodged in the hillside in homage to the heritage of farming Devon whose rusty sheds and farms still do, just about, decorate the countryside. He said "No." He said that these were the very buildings that he was trying to get rid of. Mmm. It would be a lie, he said – we are not a farm – and buildings had to be honest. I hadn't seen it like that before, and I understood.

The garage then is a clone of the house. This would seem to leave me with not too many design decisions but the offspring, as

with all babies, is not exactly like the sprung from. Most obviously, it has thumping-great doors up one end. Or to be precise, at the moment, it only has thumping-great doorways.

Doors are important, and not just to keep the unwanted out. They set the tone of the building; can lift it up or drag it down. It's as if the baby is getting a new dress. Up-and-over garage doors have little to commend them but practicality. Any plastic-coated 'panelling' that tries to look like wood fails, and fails all the more miserably because it ever tried. Anything that rolls in a rail is liable to get jammed, or so I fear. Finely jointed softwood or, gasp, hardwood doors are, in their way, magnificent, but they're not right here partly because of cost, but mainly because I don't like what they say.

This is the countryside, not the town. It is a working landscape, not a rich one. I don't want my garage to swagger. It mustn't be pretty or cute; it will never sprout hanging baskets of lobelia and geranium. If my garage doors were

a garment, they wouldn't be a frilly frock; they'd be a pair of dungarees.

## Softwood preparation

My plan is to use sawn and tanalised 8x1in softwood, as cheap and light and hairy as it comes – especially if it comes via an agricultural merchant rather than a builders'. So I loaded up the roof rack with more than I would need; forgot that it had been stacked in the rain and was three times heavier than it should have been; almost stoved in the van's roof, and, on my way back through the lanes found that the steering had formed opinions of its own. I won't do that again.

We have another Wwoofer (a volunteer) staying. Aurélien is brilliant; a 27-year-old French mechanics and business student who enjoys all sorts of work and especially problem solving. I taught him to saw, left him to it and returned to find 48 precisely cut boards, and a man with a sense of accomplishment. We left



The two layers of boarding overlap. They are held together by many 40mm screws. In themselves these are not so strong, but hopefully they will control any desire the boards might have to drift apart and let in the breeze. Until the ledge was screwed on – again lightly, knowing that strong bolts were on the way – the boarding was too flexible (and heavy) to be lifted off the trestles





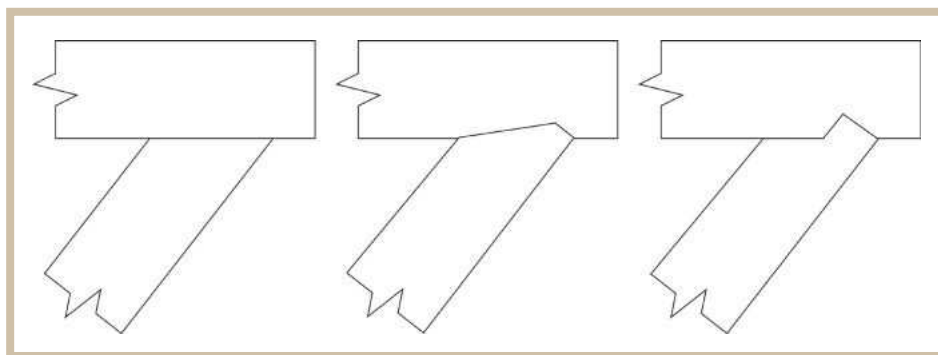


Aurélien bolts a hinge through three layers of wood with a lovely big old adjustable spanner Ed's had forever, and which often comes to his rescue. The hinge is cranked so that the door and the jamb with the pin on it sit flush

Everyone else swears by cordless, but Ed still likes his Yankee screwdriver. It is more controllable, pretty near as fast, and the battery lasts longer. The wood was soft enough not to require countersinking



If Ed made two doors and hung them, the chances of them meeting perfectly would be slight so they left the last two outer boards off the left-hand door and hung a partial structure. The plank that was to meet the right-hand door could then be positioned accurately. It was screwed in lightly then the door was taken off, and back to the trestles where the second missing plank could be positioned, accommodating any error, should it have arisen. This seems pretty obvious now but this and other constructional decisions occupied a lot of Ed's mind in and around this job. If he didn't think it through, he could have come a cropper



Three ways for a brace to meet a ledge: Easy, Smart, and Neither

the boards standing on edge on battens so that the wind could continue to dry them out.

I must minimise the amount of machining because – and I'm sorry to go on about this – I still don't have my table saw. But anyway, when I measured out each door, the gaps between the planks would, I thought, make a good detail akin to the 'hit and miss' planking on plenty of modern barns round here – never say die. Behind these two layers will be a ledge-and-brace construction to prevent parallelogram shift.

I was worried, before we started out, that I wouldn't make the doors square. I wish I'd had a sheet of insulation left over because that would have given me a large right angle. I toyed with 3-4-5 triangles but in the end used the saw as a square.

## Perfect meeting

I had thought that I would fit the brace into the ledges with a version of a gunstock joint so that there was no question at all of parallelogram shift. By the time I came to fit the brace, I was convinced that parallelogram shift was impossible.

I asked Aurélien how many little triangulations were formed between the 40mm screws we'd used. He said "(n factorial)

divided by [(3 factorial) x (n minus 3 factorial)]." That told me. 152 x 151 x 150 divided by 6 is, as anyone knows, 573,800; rounding down for those triangles that aren't triangles because the screws are in line, 570,000. That's half a million triangles that have to give way before a brace comes into effect. I could have left the brace out altogether. I didn't, because it gave added lateral rigidity and because I wanted the exterior detail of bolts to show any intruder what he had to deal with. Were I to have done a fancy little joint from the brace to the ledge, it wouldn't have made the slightest difference.

## A&C rules OK

A maxim of, I think, the Arts & Crafts Movement was 'Decorate the construction: don't construct the decoration'. Whoever said it, it is good advice. The heavy galvanised hinges on these doors are almost decoration enough with their modest semi-circular endings, but I wanted a little bit more. The ledge & brace could have been screwed to the door from inside but, I thought, what a waste! I planned to bejewel this rough-sawn softwood with the shiny domes of bolts. However much the timber weathers, they should twinkle in contrast.

What I hadn't expected was quite how long





Yes, all right, there are times when a cordless is better



Yes, all right, it does help to have a proper spanner

it would take to decide where to put them. Along the ledges it wasn't too hard – up, down, up, down, avoiding the middle of the vertical boards for each spanned a gap on the other layer. The brace was a different matter. Aurélien and I batted ideas around with limited success and finally we enrolled Frannie. It still took us well over an hour to arrive at a happy solution. This wasn't, I humbly suggest, because we're rubbish at design, but because the positioning of these bolts, their number and their spacing, was so important. We agreed it was impossible to achieve an entirely harmonious pattern, but we strove to minimise the areas where the eye would register discord. The spacing may look obvious to you; I hope it does; this is one of the signs of good design, but I assure you, it wasn't.

**A happy man: it is a delight to introduce able, intelligent, interested people to the joys of woodwork. You start with nothing, you go back to nothing, but in the meanwhile you can have a lot of fun**



Two down, two to go

## Tasks to come

Ed still has to sort out the catching: He'll put bolts to the floor – when he's laid a concrete plinth – and to the liner above, but he wants to be able to come in and out to the garden with the turn of a handle. He's just spent an hour trawling through various merchants to no avail but suspects a simple rim lock might work. And, for the sake of security as well as aesthetics, he will swap the temporary screws holding the hinge pins with long thin dome-headed bolts



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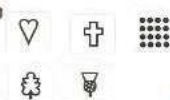
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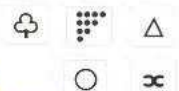
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# Reworking a

Ever the lateral thinker, **Dave Roberts** waves his wand over an old table to magic it into a quirky cabinet for CDs

**F**ans of TV's Great British Sewing Bee will be familiar with the bit where the contestants are given something like an old tee-shirt and asked to transform it into something stylish and demonstrating skill. Well, that's what I tasked myself to do when an old table with upstand and faux bamboo legs came my way. It either had to be given a not too decent burial or a major revamp. I dismissed the easy option and got to thinking about reinvention instead...

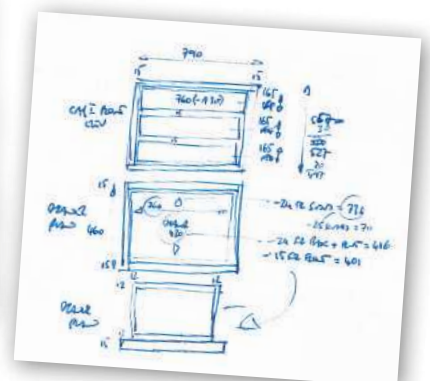
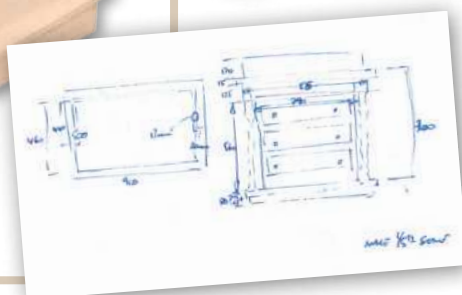
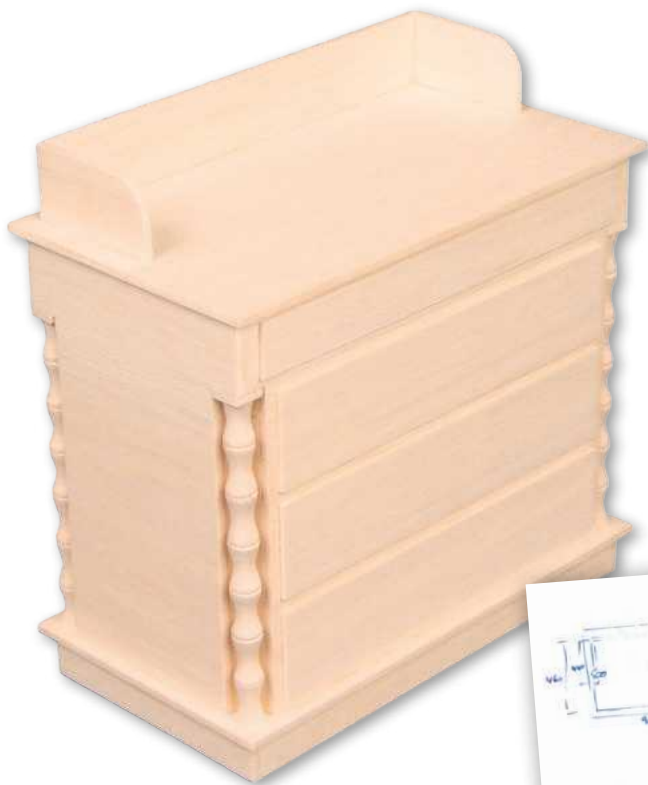
I'm not talking about repurposing when it's the necessary, sensible or most cost-effective course, and definitely not when it's part of a Disneyfied pastiche. I'm thinking instead of those instances when it's done with a view to incorporating old and new because the old has become too tired or outmoded to be of service, but is still too good to throw away. These are the times when sensibility



“There’s a piece of furniture that wants to be something else!”

outweighs sense, and the old is kept not because it's important or valuable or unique, but because its value lies in the depth or the interest that it brings; in the respectable patina of useful service that something wholly new would otherwise take years to acquire.

Actually, I have a theory that some people treat furniture this way because it's how they'd like to be thought of themselves – layered up with the polish of experience rather than laid off owing to signs of age – and I'll wager a tenner that anyone who's made a mid-life





# carcase

## Weights and measures

To make sure that the storage solution actually solves the problem, I've done some back-of-envelope sums, which go like this.

Overall, the cabinet is 790mm wide, 557mm tall, and 460mm deep. Allowing for the thickness of its sides – 15mm, to match the thickness of the tops of the table and plinth – and for thickness of the 12mm stock from which the drawers will be made, I'm left with drawers with internal dimensions of about 736 x 401mm. I say 'about' because I'll obviously build in a margin for movement so that they don't start as or become an interference fit!

In anticipation of the weight they'll carry, I'm aiming to use drawer slides (a Blum 430E drawer slide, for the sake of argument) which will take about 25mm of width out of each drawer, so we're down to a storage area that's 711mm wide and 401mm deep.

If we say that a CD is 10mm thick and, standing so you can read the spine, 135mm wide (which is generous but allows for, say, the Travelling Wilburys linen-bound boxed edition, oh yes!) then I reckon each drawer could hold about 190 CDs in five rows and still leave enough finger room to get them in

and out. That's a payload of about 23kg, which together with the weight of the drawer itself should still fall within the scope of the 430E's 30kg rating.

As for the height of the drawers, if a CD stands 145mm tall, then allowing sufficient depth for the 6mm ply drawer bases (which will be braced by the four 6mm dividers between the rows of CDs), and for clearance above the CD boxes, the overall height of the drawer fronts will be about 165mm. Given the carcase's 527mm internal height (557mm less the 30mm of the top and bottom) I can fit two 15mm cross rails to the front of the carcase above and below the centre drawer, and use the clearance that I've left above and below the drawer box to adjust the fit of the fronts – something that's bound to be required, as all this millimetre-perfect talk will never translate to timber. Not at my bench, anyway!

The last jotting on my old envelope is a nod to a multimedia world, and says that one drawer could hold 90 DVDs, in five rows of 18. Alternatively, I could put all my CDs on an iPod and use the cabinet for something else altogether!

career change will agree with me on this. Then again, it is just a theory, and I may lose my money. Indeed, I may be the only person who'd look at my poor old pine side table and think, "There's a piece of furniture that wants to be something else."

### Neither use nor ornament?

The table came my way after the fashion of a stray dog: I didn't set out to acquire it, and can't really afford the space it takes up, but I gave it a home to save it from neglect. I mean, leaving aside all the TLC that's required, it's not an altogether unattractive thing, is it? Oh, the top is split in places and quite plain, but at least it's not so thick that it's both plain and slabby, while the overall proportions of the table are equally neat and simple. On the other hand, I think that the upstand, which seems to have been crudely added to the table to replace an earlier version, should be a darned sight less upstanding! However, it's the legs that are the sticking point: if this table were indeed a dog, goodness knows what a breed society

would make of it. I know that there was a vogue for faux bamboo, but I certainly don't think that this table is one of Sheraton's 18th-century gems – or if it is, then it was made by Horace Sheraton, a carpenter from Cleckheaton, and not designed by Thomas Sheraton! From a practical point of view, the length of the legs coupled with the lack of stretchers – which is a characteristic of some

► Compared to the neat and simple lines of the side table itself, the upstand has all the charm of a boy racer's badly fitted spoiler...

◀ ...and appears to have replaced an earlier version





# Recycle project



▲ Years of wear on some of the joints means that the legs...



▲ ...are now less stable than ever!

side tables, of course – and years of wear on some of the joints not only makes the table less than stable, but means that they're vulnerable to more damage if it's moved or bumped into.

As it stands, then – which it does in a rather uncertain fashion – the table isn't earning the space that it occupies. But then, this was where my old-and-new inspiration came in: could I give the table a fresh lease of life by giving it a new use?

Like many people, I suffer from the luxury of a storage problem: I'm always short of somewhere to put belongings, either to display them or to hide them, or sometimes to do both. Take CDs, for example. When I'm looking for a disc, I want them on view and in order. For the rest of the time, however, I want them filed away out of sight. Technophiles will suggest an iPod, of course, but I was thinking more in terms of an unobtrusive piece of furniture – something like a map cabinet, say, with three drawers that slide open to their full depth to give easy access to contents.





The cabinet is shaped to fit between and around the legs so that their slight, faux bamboo forms can retire from the job of supporting the table and take up a more decorative role by offering a little turned relief to the otherwise solid, square-rigged form



## From two to three dimensions

Picking up on this thread, I pushed the idea from doodles to sketches that combined cabinet and table, before attempting to model the idea to see how it might look (see *Maquette* makes it easy, p60). You can see that, as well as reducing the height of the upstand to match the depth of the cross rail and simplifying its shape, I've given the table a plinth, which – using the rule of thirds – is two-thirds of the combined depth of the table's top and front rail. The idea is that this will not only brace the legs – which will be located in its top face – but also balance up the overall look of the table by giving it some weight at the bottom. What's more, I'm hoping that the whole ensemble will neatly frame the space where the new cabinet will sit.

The cabinet itself – which will be attached to both the plinth and the underside of the body, and so add rigidity – isn't just a box

with drawers. Instead, it's shaped to fit between and around the legs so that their slight, faux bamboo forms can retire from the job of supporting the table and take up a more decorative role by offering a little turned relief to the otherwise solid, square-rigged lines of the ensemble.

My maquette isn't an exact scale replica of course. But even though my balsa-work doesn't replicate, say, the joints that'll be used in the full-size piece, it has still helped me to work through these sorts of details by providing a focus for my thinking. So, I look at the corners of the carcass and think: "Lapped dovetails." Or I see the reduced upstand set within the table's top and make a note that I'll need to cut a housing for it. Then it occurs to me that I could extend the line of the upstand and add a little detail to the otherwise plain top by using some dentil inlay. Nothing too fancy, you understand, but enough to give the top a little lift.

But there'll be no point doing that, I tell myself, if the wear and tear around the edges





# Recycle project

of the top aren't tidied up by dressing them back and adding some lipping to restore the dimensions. This lipping could be something decorative – but would that look too contrived? – or I could use some of the timber from the new cabinet. On the other hand, I could use some of the material pared off the upstand. There might be enough, though it'd involve scarfing several lengths together, of course, and the joint would be visible. Providing that it's done neatly, however, that needn't be anything to be ashamed of: letting the bones show in this way is part of the pragmatic approach. As for the plinth, if I'm going to house the ends of the legs in sockets in the plinth, I wonder if some means of levelling the table needs to be built into the sockets? And so the list-making goes on...

## Timber decisions

When it came to the larger decisions – choosing a timber for the cabinet, for example – I did think of using a contrasting material to underscore the difference between the old and

### Tip

If you're looking for drawer and shelving inserts to store CDs and DVDs, try visiting Isaac Lord's website ([www.isaaclord.co.uk](http://www.isaaclord.co.uk)), which has a variety of frames, trays and racks that provide ready-made storage solutions.

the new sections. On second thoughts, I decided that this might draw too much attention to something that's meant to be a relatively plain piece of furniture. Southern yellow pine, then, may not be the stuff of High Church furniture making, but would be in keeping with what's already there, and has all sorts of honest qualities to recommend it: a straight grain and fine texture, stability and workability, and the ability to take a good finish. Another possibility, of course, would be to use reclaimed timber, though this raises the problems of finding a sufficient quantity of suitable material, and then working around any damage and/or any dangers to edge tools lurking in the wood.

## Finishing thoughts

Finishes? Well, I'd guess that the table has been stripped at some point and then waxed, but in order to create a reasonably uniform finish for the combined cabinet and table I'll probably remove this wax – alcohol should do the job, or, if it's more deeply ingrained, Colron's wax remover – and start again with a coat of sanding sealer to help the newly applied wax build up a deep finish.

## To the workshop!

Amazingly the plan worked out, and many happy hours later I had my restyled CD and DVD storage unit. Now where did I put my boxed set of *The Bridge*?

## Maquette makes it easy



**Ideas are made of balsa: a maquette may be low-tech design, but it's still a useful aid to planning**

I know that many woodworkers use software to create virtual models to help them visualise projects, but I thought that I would experiment with a more analogue approach, and make a rough model or maquette. Old-fashioned I know, but it would be a shame to let these old methods die out...

I used balsa for the model, as it's both easy to work and available in conveniently sized sections. It's also a fairly bland material, which I found makes it easy to view the overall shape of the piece without the eye being distracted by grain.

The model's 1:5 scale was mainly determined by the 15mm-thick table top, which reduced neatly to match a 3mm-thick balsa panel. From there, it was just a matter of scaling the other dimensions of the table and cabinet to produce a 'cutting list' of components. Building the maquette, meanwhile, called for nothing more than a scalpel, a steel rule and some sandpaper. Humbrol's balsa cement is quick-drying and strong, making it easy to build up the shape of the piece using simple butt joints which – if you exercise care and patience when cutting and sanding components so that they're square and uniformly sized – build up to produce a neat finish. To define the outlines of the drawers, I used 1mm-thick balsa rather than drawing them, which would've been the obvious thing to do, I suppose.

And the faux bamboo legs? Well, I'm no turner, so I simply ran them up from lengths of balsa dowel held in the jaws of an electric drill and shaped with a 1/4in chisel and a piece of sandpaper. I know, I know! Sandpaper isn't a shaping tool, but there it is. It's only a model!





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Precisa 4.0 P-1	Professional	Inc 1.4m STC + TLE (ditto)	3.5 / 5.2	87 mm x 800 mm	£1775.00	£2130.00
Precisa 4.0 P-2	Professional	Inc 1.4m STC + TWE + TLE (ditto)	3.5 / 5.2	87 mm x 800 mm	£1980.00	£2376.00
Precisa 6.0 P-1	Professional	Inc 2m STC + TLE (ditto)	4.0 / 6.5	110 mm x 1400 mm	£2416.67	£2900.00
Precisa 6.0 P-2	Professional	Inc 2m STC + TWE + TLE (ditto)	4.0 / 6.5	110 mm x 1400 mm	£2590.00	£3108.00
Precisa 6.0 VR P-1	Professional	Inc 2m STC + TWE + TLE + scorer (ditto)	4.0 / 6.5 + HP scorer	110 mm x 1400 mm	£2890.00	£3468.00

STC = Sliding Table Carriage. TWE = Table Width Extension. TLE = Table Length Extension.

Scheppach Precisa 3.0 is designed by scheppach in Germany but made in China where scheppach resident engineers oversee manufacturing quality control. Precisa 3.0 has the same warranty as Professional Series. Scheppach machines have been sold and serviced in the UK by NMA since 1972. Go to [nmatools.co.uk](http://nmatools.co.uk) and see what users say about NMA unprecedented service.







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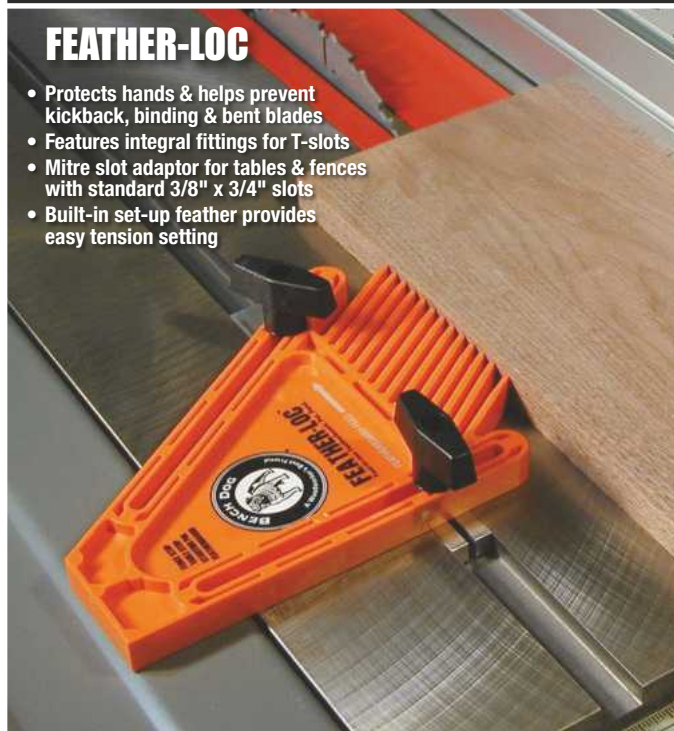
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The finished stand, with the old wire-frame one alongside. Despite the new stand containing no metal except for 20 tiny panel pins, one in each corner of five shelves, it's coping with rough treatment

## Panning out

When Tony 'Bodger' Scott complained that *GW* didn't give enough space to "ordinary mortals who love working with wood, muddling along in sheds and spare rooms, enjoying what we do and occasionally turning out something unusual," we challenged this former Fleet Street journalist to prove he's more than a hack

**O**ur old kitchen pan stand had seen better days. The white plastic coating on its wire frame was grubby, cracking and peeling off in places. And the shelves were too close together to take the larger saucepans without our having to turn the lids upside down.

Wood would be more elegant, I thought. If I made it out of a leftover piece of beech worktop, it would match the kitchen's style, too.

### Stand design

Three elements drove the design of the new stand. First, it had to have enough space between the shelves to fit at least three different sizes of saucepan comfortably. Second, the shelves had to be thin enough to limit the overall height, so as not to make the finished stand unstable. Third, the legs needed to splay to make room for the extra width of the larger pans.

It was relatively easy to work out the total height required: four saucepan heights including their lids, plus the thickness of five shelves – a little testing confirmed that 10mm struts would be more than adequate to hold the pans' weight – plus a 10mm space above each pan.

Working out what that translated into once the splay had been taken into account was more tricky. In the end, I cut the four legs longer than their finished length, figuring to trim the bottoms later.

It was also difficult to calculate how wide each shelf needed to be. In the end, I made the top and bottom shelves first, assembled them with the legs using masking tape, then measured the places and sizes for the intervening shelves.

All the shelves were square, which simplified construction. And all were set into 10mm-square troughs cut into the legs.

### A little cheating

Sharp-eyed readers will instantly have spotted that the splay on the legs means that each trough should be cut at a slight angle. I spotted that, too. But I also noticed that the angle was almost too slight to be measurable. So I cheated. The troughs were cut perpendicular; glue and varnish – no screws – masked the tiny gaps.

The only other significant difficulty in the project was the join between the crossbars and the frame on each shelf. The gluing surface was so small that when I first tested a saucepan on a finished shelf, it pushed the crossbars out (**Pic.2**). Happily, the solution was simple: a panel pin, the only metal in the project, through each corner of each frame. I think the result looks a bit like an oil-drilling rig, which I rather enjoy. And, unexpectedly, my wife loves it. So all's well...



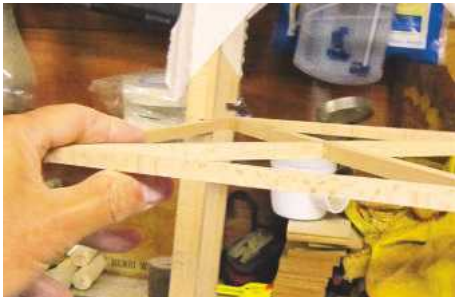


▲ Pic 1. Trying to work out the appropriate size for intermediate shelves – given the splay on the legs – made Tony’s head hurt. It was simpler to make the top and bottom shelves first, then hold the structure together with masking tape

► Pic 2. Once he’d got the top and bottom shelves level, he used saucepans to work out the position of each intermediate shelf. Note, by the way, that the crossbars on the bottom shelf have broken out. He added panel pins later to reinforce the glue



▲ Pic 3. A clamped-on fence helped to ensure that the notches for each shelf lined up accurately on the legs



▲ Pic 4. With the notches cut on the legs, measuring the size for each square shelf was straightforward. Dry-fitting confirmed the size before glue-up

► Pic 5. Once all five shelves were made, the full stand could be put together. Only glue holds shelves to legs. But there are enough joints to keep the stand rigid



## Splining process



▲ Pic A. Reinforcing mitre joints with contrasting dovetail splines is Tony’s favourite ploy. The process starts with running a glued corner past a horizontal dovetail cutter on a simple sled consisting of two offcuts glued to a piece of MDF; doing a shallow cut first into the back of the corner, as here, prevents breakout



▲ Pic B. The same cutter, left at the same depth of plunge, is lowered to shape the sides of the spline – this time without the sled. Tony routs a long length at a time, then cuts it into slices and slides each slice with glue into a corner slot



▲ Pic C. The legs of the stand were reinforced in exactly the same way as the shelves. Each pair of legs was three sides of a rectangle for ease of jointing. The splay between the legs went only between the pairs



▲ Pic D. Once the glue has dried, it’s simple to trim off the wings of each spline on a bandsaw, then sand the corner smooth. Thanks to modern glues, the finished joint is stronger than the surrounding wood



▲ Pic 6. Getting all the joints up tight with the shelves level required, as always, several clamps. In this project, it also required diagonal bracing with string





# Good Woodworking

# Letters & Makers' notes

Write to Good Woodworking, Enterprise Way Edenbridge, Kent TN8 6HG

Email [andrea.hargreaves@mytimemedia.com](mailto:andrea.hargreaves@mytimemedia.com)



LETTER OF THE MONTH

## Honouring life

These photos are of some work I have recently completed, some walnut and maple pepper grinders with crush-grind mechanisms and also a container for a WW1 poppy from the Tower of London display. How could I not make a special holder with what this represents – someone's life?

**Andy Pickard, by email**

*Those poppies are inspiring some imaginative holders, like Hannah Dowding's in the last issue. And those grinders are beautifully designed and executed.*

**Andrea Hargreaves**



Edward Hopkins routs a housing for a tread

## Trip on the stairs

I do look forward to Edward Hopkins' journal and have nothing but respect for his joinery skills, but I was concerned about the structure of the staircase in the last issue. While he doesn't go into great detail, and there's only a few images, an open tread riser is illegal in any domestic or workplace situation unless it is closed down with either a stub riser or by putting a rod or similar through the riser area to close it down to less than 100mm.

**Phil Hennessy, by email**

*Phil, thanks for your email. By my understanding, a garage is not subject to building regulations. The roof space of my garage is primarily for storage and, if Frannie will forgive me, for my use only. It is more akin to a loft than to a domestic building or workplace and, by that logic, my stairs are a lot safer than a loft ladder. I do, however, confess to impetuosity and am guided more by common sense than by ever-changing legislation. It is reassuring, however, to know that my staircase can easily be amended should it be required. More to the point I'd have thought is that there is no handrail. A staircase without a handrail is, in my opinion, a disaster in waiting. In due course I'll put one in.*

**Edward Hopkins**

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AD1/4/03





## WRITE & WIN!

We always love hearing about your projects, ideas, hints and tips, and/or like to receive feedback about GW's features, so do drop us a line – you never know, you might win our great Letter of the Month prize, currently a Trend Easyscribe, worth £29.99 inc VAT. Write to the address on the left for a chance to enhance your marking capability with this versatile workshop aid.

## Visit at your peril

William Morris, as a pioneer socialist, could be more than a bit blinkered about the reality of hand-crafted furniture for the masses. As a returning customer (recidivist?) I feel that you glossed over the strength of Treske as a business (GW290). It has the mass provision element exhibited on their website with naves full of hundreds of beautiful chairs and other bespoke fittings. In the showrooms there are usually masterly one-off items passing through. In the middle are the catalogue ranges that most nearly match Morris's vision in that since it is made to order it is open to minor but useful modification and enhances its fitness for purpose.

Thus we have upholstery to fabric of choice, a table 8in shorter than standard and a dresser too that has six extra inches over the base unit cupboards to accommodate a row of clocks. Within a small selection the timber is also your choice. Visit at your peril however; we recommended such a visit to an old friend with his wife who wanted to furnish a move to a bungalow. Until his death he gently thumbed me about that visit that had cost him several thousand pounds!

**John Jennings, Penrith**



This dresser is extra wide to accommodate a row of handsome clocks

*Time poverty meant we had to do our own shorter version of the Thirsk Trail, limiting ourselves to the smaller workshops, but a number of makers that we did visit referred to Treske as THE one. It was heartwarming to see how this group supports each other, as each told us a positive tale about the next. Indeed, there's something about the go-gettingness of those in the north of the country – witness the networking of the Northern Contemporary Furniture Makers – which those of us based in the south, often choosing to work in isolation, could do well to copy. Any other examples of togetherness? Please let me know.*

**Andrea Hargreaves**

## Cyclone in a cone?

I applaud Ted Hughes' efforts to create a cyclone from a traffic cone and as he says, commercially available ones are expensive. However I wouldn't wish other readers to think this is a workable solution as what Ted has actually made is simply a particle interceptor, not a cyclone. This is the same as the dustbin lid adaptors available from a number of sources and, as he indicates in his letter, it collects most of the dust. What it is doing is causing heavier particles to drop out into his bin but it will definitely not be removing any of the smaller ones.

The size and length of the cone compared to the extract and inlet pipes are far too small. The extract pipe would need to extend inside down towards the bottom of the cone and the inlet needs to be tangential to the cone side. The overall size has to match the extraction rate so the inlet air speed is correct for the cone size. Designing a cyclone is not straightforward as I found out researching designs for myself, and depending on various factors they can be made to separate out dust down to small micron sizes,

so highly efficient.

If Ted uses this device with a vacuum cleaner, as his letter suggests, it is likely he is then reintroducing fine dust particles back into his work area unless his vacuum cleaner has suitable filtration.

Interceptors or separators are a very useful addition to an extraction system as they can be far easier to empty on a regular basis than vacuum cleaner/extractors and possibly reduce costs for waste/filter bags. For anyone else wishing to do this the dustbin lid adaptor is a cheap and quick solution and just as effective as this example.

**Geoffrey Laycock, The Otter Consultancy, Kingston upon Thames**

*Thanks for the explanation Geoffrey. It is good to see the subject of extraction treated with the seriousness it is due. I come across too many woodworkers with niggling coughs who sheepishly admit to not always taking the care with dust extraction that they should. You know it makes sense...*

**Andrea Hargreaves**

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AD14/04



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# Around the House

with Phil Davy



One of the pleasures of owning a woodburner is the amount of free fuel you can find, if you're willing to

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Since buying oak logs before Christmas I've found a source of free pallets, which I'm keen to investigate.

Although mostly softwood and in need of sawing to get them into the car, you can't really complain when they cost nothing.

On short walks I've started to carry an old rucksack for firewood, too. I may get some odd looks, but you get used to that living in the country! And there's never any shortage of workshop offcuts to use for kindling to get a good blaze going, either.

Phil Davy, Consultant Editor

## Book review

### Man Crafts

Popular Mechanics

**Here's a quirky little hardback.** The contents were published some 70 years ago as a range of step-by-step booklets to help American servicemen sharpen their craft skills at the end of WW2. The idea was that transferable skills acquired through a variety of projects would help them create a more worthwhile future for themselves and their families. You may not want to tackle most of the subjects covered, but they make for entertaining reading.

Sadly, there's only one chapter dealing with woodwork as such: Coping Saw Carpentry. Not surprisingly, the two projects discussed, book ends and pipe rack, have a soldier and sailor theme and are covered in just five pages, though they're quite amusing. A subsequent chapter on Axe Craft does include several rustic designs for outdoor furniture, though these are

pretty basic and leave a lot to the imagination. Other topics focus on leathercraft, bookbinding, braiding and knotting, fly tying, block printing, lettering, all with plenty of delightful illustrations. My favourite chapter has to be Cartooning. All you need to take on *The Beano* or *Dandy*!

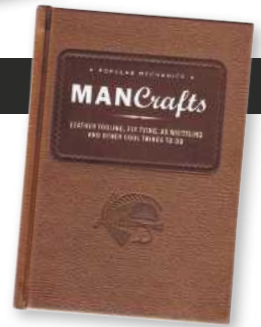
*Man Crafts* will certainly appeal to lovers of nostalgia and a previous era. If you hanker after the days before technology ruled our lives, then put on your slippers, light up the pipe and settle down with *Man Crafts*. It even has a gorgeous leather-effect cover.



Published by Hearst

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## Q&A

### Flatbit or Forstner?

**Q** As I have various hardwood offcuts in the workshop I would like to use them to make tealight and candle holders. These are likely to be about 45mm thick, but I'm not sure what sort of drill bit is best for boring the holes, which need to be as neat as possible.

**C Clements, Norwich**

**A** For tealights you'll need a bit about 40mm in diameter, though for safety it's best to use a glass or metal surround that's recessed into the timber. Buy these first and check the size before obtaining a bit. The cheapest option is to use a flatbit, though its point is likely to poke through the base of the wood, depending on hole depth. You could get round this by filling each hole underneath with a suitable two-part filler before sanding flush and finishing the timber. Cheap flatbits tend to wobble slightly, resulting in slightly oversize holes.



The tidiest hole will be produced by a Forstner bit, which creates a flat bottom. More expensive than flatbits, these should not be used in a power drill held freehand. Ideally the bit should be fitted in a bench drill, or electric drill mounted in a drillstand. Avoid using any type of auger bit with threaded tip. This will wrench the workpiece upwards as you lower it into the wood.

Make sure you clamp timber to the drillstand base, moving it for each hole.

Check hole diameter on scrap softwood first, and always feed the bit into the wood slowly to avoid burning. If it starts smoking, stop boring and allow the bit to cool. Scrape off any resin deposits and resume boring.



Here's an idea...

Technique

SECRET PANEL FIXING



## On the button

Phil Davy shares his discovery of a product designed for hidden panel fixing

 Back in *GW284* I explained how to install a bath panel with a traditional flavour, using beaded tongue & groove boards. At the time I made three separate panels, which were a push-fit into the bath framework. While the finished appearance was neat, these panels had to be a fairly tight fit to prevent them working loose and falling out. That meant removal for access to taps was not always going to be easy, especially if moisture in the room could eventually lead to the timber becoming slightly swollen.

Since then, I've found the answer has been a clever product called Button-fix, designed specifically for concealed panel fixing. Using this system, any panel that needs to be removed easily is now that much easier to fit.

### Button-fix

The Button-fix system consists of two components, made from tough nylon. One is screwed to the back of a panel, the other to adjacent framework and simply clipped

together. Buttons come in two colours: green for 5mm countersunk screws and orange for 6.2mm Euro screws, designed for thinner panels. Mating brackets (Fixes) are fitted with 4.5mm pan-head screws.

With just two variations, it's possible to fit boards or panels in several ways. Type 1 Fix is for mounting parallel panels, where one is attached to another or to supporting battens. The panel is fitted (or removed) by sliding it sideways or vertically, depending on how the Fix is orientated. You need to allow a gap of 15mm beyond the panel edge for this sliding movement.

Type 1 Fix can either be surface mounted or recessed. Surface mounting creates a gap of 8mm between the panel and framework or brackets behind. Rout a 6mm-deep recess and you can reverse the Type 1 Fix, reducing the gap down to 3mm.

Type 2 Button-fix is for mounting panels at 90° to the framework. These enable panels to be either inset or overlaid on a framework. I used Type 2 Fixes on my bath panel, with marker tools making it easy to position both the buttons and Fixes. Fixes have elongated holes to allow for sideways adjustment.

With panels fitted, it was just the skirting that needed attaching. Although Type 1 Fixes were suitable, they would have created that 3mm gap. I overcame this by drawing around the Fixes at the back of the skirting and routing to a depth of 3mm. The recommended Fix recess was routed to 9mm instead of 6mm, enabling them to be fitted flush with the timber. Simple, and it worked a treat.

Although Button-fix sells an expensive routing jig for the Type 1 Fix recess, you could easily make an MDF template for the task.

### Marker tools

Handy red marker tools are used to align buttons and Fixes, with pointed tips to indent the back of the panel for accuracy. You actually need a marker for each fixing, though these are re-usable and you probably won't need more than about half a dozen.

### Counting the cost

Reckon on paying about £9.50 for a pack of 12 buttons and either Type 1 or 2 Fixes. Marking tools cost about £1.50 each for either pattern.

Button-fix is quick and easy to fit, with almost no measuring necessary. There are several video clips on the Button-fix website if you're not sure about fitting, but try them on offcuts first. Visit [www.button-fix.com](http://www.button-fix.com) for more information and stockists.





The components clip together



Mating brackets are fitted with 4.5mm pan-head screws



With the aid of a router the gap made by surface mounting can be reduced



Red marker tools are used to align buttons and mating brackets

## How to do it



**1** Type 2 Fix enables you to fit panel to framework at 90°. Space these up to 600mm apart



**2** Click marker tool into Fix (bracket) to give position for button. Drill and fix button to frame with 5mm screw



**3** Attach remaining buttons to frame. Position panel and press against marker points to give indents



**4** Remove panel and drill where points have made indents. Attach Fixes to surface with pan-head screws



**5** If panels are too tight in frame, plane relevant edges to ease fitting. Use spacers on floor to aid positioning



**6** Type 1 Fixes are surface mounted (right) or recessed (left). Red marker and button are interchangeable



**7** Skirting is fitted with Type 1 Fixes, recessed into back. Insert markers and press against panelling



**8** Remove markers, then drill and screw buttons to panelling. Click skirting in place and adjust if necessary



**9** Finished skirting and panelling is neat with concealed fixing, though easy to remove for access



Timber talk: Womad workshops

# Koras & ukuleles



The kora is also called the west African harp



It has 21 or more fishing line strings



Aliou Gassame demonstrates the kora



**You never quite know what you'll come across at Womad, the UK's leading world music festival.**

For anyone interested in unusual sounds it's the place to check out some of the quirky instruments seen on stage and often created just with hand tools. Typical of these is the kora, a unique stringed instrument from West Africa, used in both traditional music and increasingly cross-cultural bands. Also called the West African harp, it has 21 or more nylon strings from fishing line, but originally animal hide.

I caught up with renowned Senegalese kora maker and teacher Aliou Gassame in the corner of a tented workspace at last summer's event. Busy tuning an instrument which had recently been completed, he would perform on it on Womad's last day. In Senegal it typically takes three weeks to complete a kora from scratch, depending on the weather, which can be crucial for drying the skin that covers the resonator. A couple of instruments were under construction at the festival to give punters a taster of the techniques involved.

Koras are notoriously difficult to tune, each



Each string is tensioned with a braided leather ring on the neck

string being tensioned with a braided leather ring on the neck. Aliou was making this look easy though.

To make tuning easier and more stable, instruments are often fitted with metal guitar machine heads.



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The sound chamber is made from calabash



Once dry the gourd is covered with skin secured by pins

## Kora creativity

At the lower end of the instrument is the sound chamber which is made from calabash, a type of gourd. Cut in half, the inedible fruit is scooped out and the hard shell filled with sand to retain its shape while drying out for two or three weeks. Once dry, it is covered with cow or antelope skin (deer skin on koras built in Britain), stretched taut and secured with decorative pins around the outside. A metal hoop reinforces the rim of the calabash and prevents distortion when the skin is fully tensioned. Holes are cut for the neck, cross bar and handles to pass through.

Large calabashes are louder and popular on instruments played in African villages before amplification was feasible. Smaller calabashes are ideal for koras that are fitted with electronic pickups. This addition is essential for koras used on stage, where there's likely to be a big crowd or they may have to compete with louder rock instruments.

## Kano construction

While sapele and bubinga are generally used for making kora necks in Europe, the best timber is kano, indigenous to West Africa. Adam Doughty, who runs kora workshops in south Wales, spends almost half the year in Senegal, where he has bought timber in log form but is growing kano trees on a sustainable basis on several hectares of land.

"We have at least eight mature kano trees and it grows quite easily," he told me. "Getting sustainably-sourced hardwood is always a problem. I'd love to be able to bring in kano myself so that I know where it comes from." Adam has largely been responsible for the instrument's evolution in recent years, in particular the use of machine heads. His friend Alio supplies the calabashes that Adam then brings to Britain.

There's no doubt the kora has a beautiful sound. If you're intrigued to hear it, check out artists such as Seckou Keita, Toumani Diabate or even Afro Celt Sound System. For information on kora building courses in Wales, Senegal and the south of France visit [www.thekoraworkshop.co.uk](http://www.thekoraworkshop.co.uk).

## Unique ukes

While the kora is impressive, it's harder to play than many instruments and not as portable. Perhaps more popular at festivals around the country is the simple ukulele. Strumming away on a rather unusual version was Rick Thorpe, creator of the RICulele. These are made from discarded oil cans and timber. Rick grew up in

South Africa, where musical instruments are often created from recycled metals. Living in Devon, he gets engine oil cans from a classic car garage down the road, while local Italian and Turkish restaurants supply him with olive oil cans. Necks have been built from old conservatory timber found in a skip; he uses a bandsaw, surform and multi-tool for shaping them. Again, these little instruments are fitted with a pickup, so can be plugged into an amp. Each uke takes Rick a couple of days to make and with just four strings they're definitely easier to tune than a kora... More details at [www.rickthorpe.com](http://www.rickthorpe.com).

This year's Womad festival runs from 24-26 July and takes place at Malmesbury, Wiltshire. For info visit [www.womad.co.uk](http://www.womad.co.uk).

**Rick Thorpe on his RICulele**

The four strings of a uke make tuning easier than a kora!





## Out & about: Totally Tools & DIY show

# Sealant City

 I've mentioned in the past that there's often a theme, however unintentional, for the annual **Totally Tools & DIY Show**. Staged at the Ricoh Arena – now home to Wasps as well as Coventry FC – this year's event could well have been tagged Sealant City. Surrounded by a sea of sealants, guns and nozzles, it was a challenge to find specific woodworking products, apart from obvious stuff such as adhesives. Power tools were thin on the ground, though there were several DIY gadgets that could well find their way into our toolboxes over the coming months.

One of the smallest and neatest had to be the Marxman, a device for marking walls



The Marxman is used for marking walls before drilling

MultiFix needs no mixing



The Jamm is just the job for door holding



Graft take the, er, graft, out of sealant and adhesive choice

precisely for drilling. Perhaps not too difficult on a smooth surface, but if you've ever had to bore into a pebbledashed or stone wall you'll know the problem. With the Marxman you just squirt the aerosol through the hole of whatever you want to screw to the wall. A vivid green jet of chalk forms a cross on the surface, enabling you to position your drill bit. With only prototypes on display, we'll let you know how effective the Marxman is when we can get our hands on one.

## Roller stand & Jamm

If you have a planer, table saw or bandsaw in the workshop you'll know a roller stand is



Batavia's stand offers four roller options

The lack of styrene means Metolux is safer to use and less noisome



almost essential for some machining tasks. When cutting sheet materials it's often better to have ball bearings underneath instead of a roller, or perhaps you may need a V-section support for some operations. Now there's a multifunctional stand with four options from Dutch company Batavia. To swap from one to another you simply rotate the head, locked with a spring-loaded pin. The fourth surface is a length of rigid steel section that forms a simple bench top support, rather like an industrial sawhorse. All on a sturdy base that's adjustable for height and can be folded for storage, this looks like a handy product for the workshop.

A plastic doorstop may seem a rather odd gadget to include here, but the Jamm is perfect for holding any door rigidly when fitting a lock. I've been using one recently and it certainly works well enough.

## MultiFix & Metolac

Most of us keep several glues for varying tasks and materials, one of the most useful being epoxy. MultiFix Power Adhesive is a fast-curing, two-part acrylic glue that's safer to handle than most epoxies and doesn't even need mixing. We'll compare it with regular epoxy and see what all the fuss is about.

Two-part wood fillers tend to give off a strong odour when you open the tin. With reductions in VOCs (Volatile Organic Compounds) a major concern for manufacturers these days, familiar brand Metolux will soon be available in a styrene-free formulation, so it's safer to use and less smelly, too.

## Reducing the graft

So, what about those sealants and adhesives? We may use them around the house for sealing kitchen worktops, baths or showers, but with so many on the market, how do you choose? Graft has simplified the process by introducing colour coding and internal/external labelling. It's actually been manufacturing similar products for other brands for decades, so should know what it's talking about.

Who knows what next year's Totally Tools theme will turn out to be? A few more power tools would be welcome...





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# Nuts in May



Les Thorne happily goes nuts over the design of this bowl and hammer, turning it in boxwood and ash



**W**oodturners have been making nut bowls in many types for hundreds of years, some just for storage and some with an attachment for cracking the unshelled nuts, such as a ship's wheel nutcracker of the sort sold by my father in his woodturning supplies shop.

This month's design was introduced to me by a student who had seen one of them on the internet and thought it would make a great project. One of my concerns was how much damage could be inflicted onto the stem in the middle by constant hammering, but I decided that this

would constitute natural ageing.

Needing a timber that's really durable for the hammer, I decided on boxwood, having a large selection of 100mm- to 150mm-diameter logs which are very dry and very split. I cut around the splits to obtain some of this lovely timber that's used for restoration work and customers' tool handles.

Ash was chosen for the bowl as it fits in well with the décor in my house where the finished item was going to end up, hopefully earning some Brownie points from management at Thorne Towers.





▲ Pic.1 The wood sizes: the bowl could be made bigger but the hammer size must be the same as over-enthusiastic cracking with too big a hammer could damage the bowl



▲ Pic.2 Once you have mounted the bowl blank on your lathe true up the timber using a push cut with your bowl gouge. Once you have done that check the wood for any faults like splits



▲ Pic.3 Mark the size of the chuck spigot on the bottom. The larger than usual flat on the bowl will make it more stable



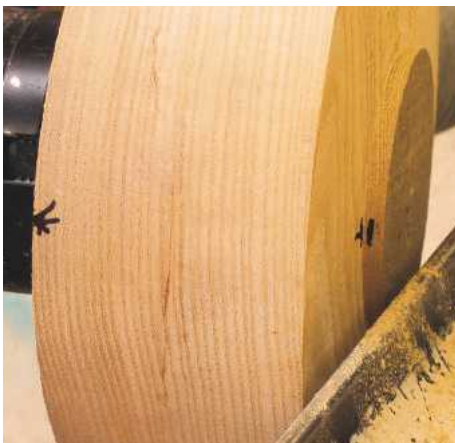
▲ Pic.4 Marking the centre of the foot with the point of a skew chisel will allow the bowl to be centred when it is remounted to remove the chucking point



▲ Pic.5 Use the 13mm bowl gouge in a pull cut to remove the bulk of the unwanted wood from the area around the foot. Keeping the tool handle low will help the tool to cut rather than scrape



▲ Pic.6 The 10mm round skew is used to turn the foot, and will also create a small flat alongside the foot that will sit against the top of the jaws for strength and accuracy



▲ Pic.7 The two pen marks on the blank show the start and finish of the shape. It's so important when trying to achieve good shapes to set the parameters of where you are going to finish



▲ Pic.8 This is how the shaving comes off the tool when you are turning with the long-grind bowl gouge in a pull cut. The shaving comes off the cutting edge and rolls around the flute before exiting



▲ Pic.9 Once the shape is roughed out with the 13mm gouge Les goes to the 10mm bowl gouge for his finishing cuts. This is a push cut with the bevel rubbing and will give a great finish



# Turning



▲ Pic.10 Once he's finished the back of the bowl he remounts it using the spigot and starts the hollowing. Unlike a normal bowl a stem will be left in the centre



▲ Pic.11 Tooling the curve in the bottom well is not easy. A 10mm gouge is first worked down in the same way that you would turn a normal bowl



▲ Pic.12 The same tool is used here working from the inside to the bottom of the curve – don't come up the side because that could lead to a dig in. It's a bit like doing a cove on spindle work



▲ Pic.13 Still not happy with the cove, Les has switched to a bowl gouge with a 60° bevel angle. This allows him to rub the bevel very easily in the bottom of the bowl



▲ Pic.14 The inside bowl turning is complete. The centre stem must be tall enough to put the nut on easily but if it's too high the shells can fly out during the hammering process



▲ Pic.15 Sanding a shape like this is fairly easy by hand, but Les prefers to power sand wherever possible so has attached a Simon Hope interface pad onto his arbor for flexibility



▲ Pic.16 Reversing this bowl is going to be a little more difficult than normal, but the drum chuck off his vacuum system will allow him to cope with the central stem



▲ Pic.17 Only put enough tailstock pressure on the work to support and drive it. You should be able to remove nearly all the foot using this fixing



▲ Pic.18 With the remaining timber removed you will need to sand the bottom of the bowl. The best way is to mount your sanding arbor in the drill press, maintain a strong hold and keep it moving





▲ Pic.19 Whenever you make a bowl that will come into contact with food use food-safe oil. This one from Chestnut products will give a pleasing matt finish



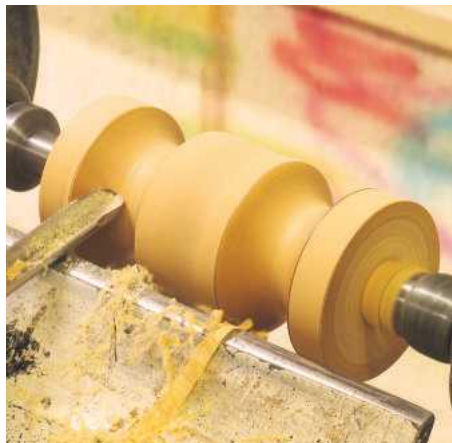
▲ Pic.20 The head of the hammer is the next thing to turn. Les has marked a line all the way round so he can drill the hole first and mark the centres accurately



▲ Pic.21 Cutting the corners off the blank makes roughing out easier. By drilling the 13mm hole first there will be no chance of the hole breaking out, like there could be if drilled when the piece was round



▲ Pic.22 Les has marked the position of the detail. He removed the majority of the waste from the end first, taking about 5mm from either end to allow for the holes made by the centre



▲ Pic.23 The 10mm Signature spindle gouge is the perfect tool for cutting the grooves on the hammerhead. The small bevel works well on dense timbers like this boxwood



▲ Pic.24 Use the Verniers to check that both grooves are the same depth. Go down to about half the diameter, making these as accurate as possible



▲ Pic.25 Les is going to do this end with the gouge, keeping the bevel in the direction of cut. You can work down until there is as little as 3mm of timber supporting the end



▲ Pic.26 The other end is done with the skew to show that this job could be done with either tool. A slicing cut with the long point of the skew is the safest way, and leaves a superb finish



▲ Pic.27 When cutting off the waste make sure that you leave a little extra on top rather than cutting it off flat, to allow you to dome it over with the sandpaper



# Turning



▲ Pic.28 The handle is mounted up between centres. Make it round with the roughing gouge. You can see the amount of waste that Les has allowed at the tailstock end



▲ Pic.29 Make sure that the spigot is long enough to go all the way through the head. Using Vernier callipers for accuracy, turn it down to the exact size to fit through the hole



▲ Pic.30 If you turn half a cove after the spigot it will hide the hole where the handle goes into the hammerhead. Before turning the rest of the handle check the fit



▲ Pic.31 After the initial shaping with the roughing gouge, use the 10mm skew to plane the handle. Because of the vibration, support the wood with your fingers behind the work



▲ Pic.32 The little bead on the end is turned with the skew. When you sand the handle make sure that you don't soften all the crisp detail that you have turned so far



▲ Pic.33 Les has cut a slot in the end of the tenon on the bandsaw. Using a wedge to fix the handle is the traditional way, but Les is planning to use glue as well



▲ Pic.34 The ebony wedge needs to fit perfectly into the hole in the head so I sand until it is exactly the right width. The wedge is about 15mm long and about 2mm thick at the fat end



▲ Pic.35 After the end is carefully sanded you can see how effective the ebony looks against the boxwood. The handle is finished with food-safe oil just like the bowl





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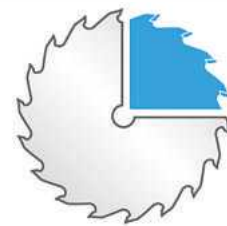
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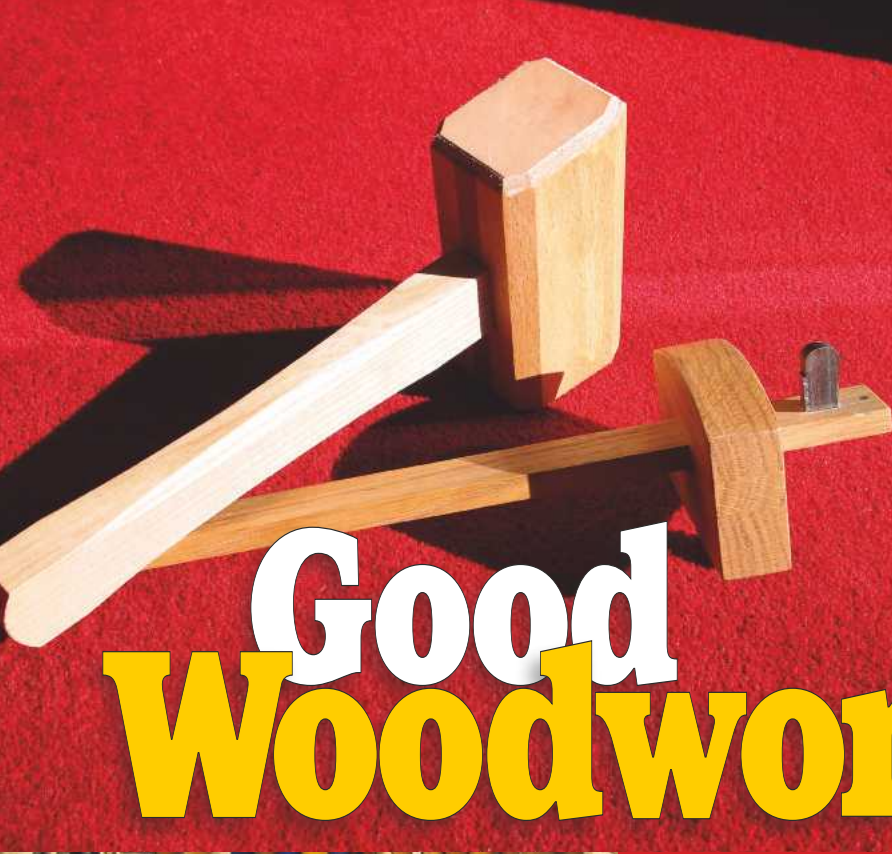
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# Good Woodworking

NEXT MONTH

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## MALLET & CUTTING GAUGE

Want to fashion your own tools? Phil Skinner shows you how to make three mallets and three cutting gauges – one each to use and two each to give away to woodworking friends – in a weekend, and what's more they can be made from offcuts

## POST & RAIL CABINETRY

Michael Huntley's woodworking course looks at forming a post & rail structure to make a carcass. The space enclosed by the post and rail will be filled with a panel. This is the basic structure, ie post & lintel (rail), used in this country from the building of Stonehenge until the advent of brick-built houses in the 17th century

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# Finishing Touch

## Origin of fixings

## Michael Huntley's history of the nail



Nails date back to 3,000BC at least. In the early 20th century it was reported that there were about 300 types of nail available. There are three main production methods, wrought nails, cut nails and wire nails. Wrought nails were made by a blacksmith and are the type used in early Mediterranean civilisations. They continued to be made until the late 18th century. Cut nails began to be made in the early 19th century from a sheet of cold iron. Throughout the century improvements were made and we still see cut nails from that period when working on old houses.

By the start of the 20th century mild steel round wire was being used to produce wire nails. Known as 'French' nails, they had a large head and because they could not be punched below the surface they were only used for rough work. Their shanks were parallel, with the result that their holding power was less than a cut or wrought tapered nail, but their ability to be mass produced and thus cheaper, made them popular.

### How nails work

Nails work because the elastic fibres of the timber try to return to the position they held

Thanks to the Avoncroft Museum, Worcestershire for this nail-making picture. The museum has practical days throughout the year; go to its website [www.avoncroft.org.uk](http://www.avoncroft.org.uk) for details. The museum is well worth a visit if you like old buildings and crafts

prior to the insertion of the nail, thus exerting a sideways grip on the nail. The tapered nail allows more 'sideways grip' to be applied. The length of nails should be about three times the thickness of the thinnest piece held by the nail. The cut nail, although harder to withdraw, did have one disadvantage compared to the wire nail: it could not be clenched without danger of breaking. The wire nail, though, was easily bent over and clenched, thus making it impossible to withdraw. The malleable blacksmith iron nail could of course be clenched.

### Tip

Use oval nails at right angles to the grain; this way the chisel-edge tip cuts the wood fibres rather than wedging them apart, thus reducing the likelihood of splitting.

The type of nail and the material that it is made of can be used in establishing when an item or building was made or was last repaired. Gone are the days when we throw away old nails!

### Types & gauges

There are so many nails that it would be silly to waste space by describing them, but just to give a flavour of the range here are some that are pertinent to the joiner or cabinetmaker: wrought, cut, round-wire, oval-wire, lost-head, annular ring, clout, panel pins, veneer-pins, escutcheon pins, tacks, gimp pins, Gothic head and rose head, domed head, fancy-head upholstery, masonry, hardboard, sprigs, and staples.

One common problem is to understand nail gauges. Gauge 1 has a 7.2mm-diameter shank, gauge 10 has a 3.4mm shank, gauge 15 has a 1.8mm shank and gauge 20 has a 0.88mm shank. The gauges refer to wire gauges but nail sizes are not necessarily a direct conversion from wire gauges – which incidentally also match knitting needle sizes! As with screws and threads several different systems existed in the past; the easiest solution is to get out the Vernier callipers and measure the nail.



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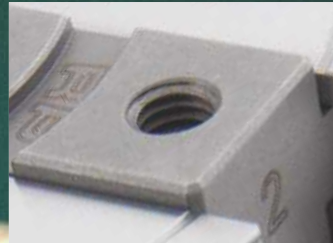
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